सत्यमेव जयते

Ministry of Surface Transport
(Roads Wing)

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° & 30° SKEW) SPAN 4.0m TO 10.0m (WITH AND WITHOUT FOOTPATHS)

Ministry of Surface Transport
(Roads Wing)

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R.C.C. SOLID SLAB SUPERSTRUCTURE (15° & 30° SKEW) SPAN 4.0m TO 10.0m (WITH AND WITHOUT FOOTPATHS)

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(A) GENERAL

1. These notes are applicable for the Standard Drawings for R.C.C solid slab superstructure with and without footpaths.
2. These drawings are applicable only for skew bridges with overall right width of 12 m.
3. No raised footpaths shall be provided on bridges having length less than 30m measured along skew direction unless the same are otherwise existing on the approaches.
4. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed. No drawing shall be scaled.
5. Design criteria:
   - I. The design is according to the following codes:
     - (a) IRC : 5–1985
     - (b) IRC : 6–1966 (1985 reprint)
     - (c) IRC : 21–1987.
   - II. The following loads have been considered in the design:
     - (a) One lane of IRC class 70R or two lanes of IRC class A on carriage way, whichever governs.
     - (b) Footpath load of 5 kN/sq.m. for superstructure having footpaths.
     - (c) Wearing coat load of 2 kN/sq.m.
   - III. The designs are applicable for 'MODERATE' AND 'SEVERE' conditions of exposure.
6. Public utility services (except water supply and sewerage), if required, shall be carried over the bridge through 150mm diameter ducts provided in the footpaths. Total load of such services shall not be more than 1.0 kN per metre on each footpath. Water/sewerage pipeline shall not be carried over any part of the superstructure. Inspection chambers in footpaths may be provided as shown in the drawing. The locations and spacing of chambers along the footpath will be decided by the Engineer–in–charge in consultation with the users.
7. Wearing coat shall consist of the following:
   - I. (a) A coat of mastic asphalt 6mm thick with a prime coat over the top of the deck before the wearing coat is laid. The prime coat of mastic asphalt shall be 30% straight run 30/40 penetration grade bitumen and 50% light solvent (Benzol) to be laid over the deck slab. The insulating layer of 6mm thick mastic asphalt with 75% lime stone dust filler and 25% of 30/40 penetration grade bitumen shall be laid at 375° F with broom over prime coat.
     - (b) 50mm thick asphaltic concrete wearing coat in two layers of 25mm each as per Clause 512 of MOST's Specifications for Road and Bridge Works (Second Revision 1988).
   - II. In case of isolated bridge construction or bridges located in remote areas where provision of mastic and asphaltic concrete wearing coat is not practicable, the Engineer–in–charge may permit provision of 75mm thick reinforced cement concrete wearing coat in M30 grade concrete with maximum water cement ratio as 0.40. The reinforcement shall consist of 8mm High Yield Strength Deformed bars @200mm centres. However in the 300mm width adjacent to expansion joint the reinforcement shall comprise 8mm dia HYSD bars spaced at 100mm centre to centre in both directions.
8. Wearing coat shall be discontinued at expansion joint locations. Joint fillers shall extend upto the top of wearing coat.
9. Width of expansion joint has been kept 20mm only which does not cater for any allowance for possible tilting of abutment.
10. Support for the deck slab shall provide a bearing width of 400mm measured in a direction perpendicular to support.
11. In urban areas,chequered tiles may be provided in the footpath portion by suitably adjusting the thickness of the footpath slab.
12. Type/position of return walls, railings, guard posts, ramp etc. in approach portion shall be decided by the Engineer–in–charge.

(B) MATERIALS SPECIFICATIONS

Concrete

1. Concrete shall be design mix and shall have minimum 28 days characteristic strength of 30 MPa on 150mm cubes for all elements of superstructure for both 'SEVERE' and 'MODERATE' conditions of exposure.
2. Ordinary portland cement conforming to IS:269 or high strength ordinary portland cement comforming to IS:8112 capable of achieving the required design concrete strength shall only be used.
3. The minimum cement content and maximum water cement ratio in the concrete design mix shall be 310 kg/cu.m. and 0.45 respectively for 'MODERATE' conditions of exposure. The minimum cement content and maximum water cement ratio in the concrete design mix shall be 400 kg/cu.m. and 0.40 respectively for 'SEVERE' conditions of exposure.

Reinforcement

All reinforcing bars shall be High Yield Strength Deformed bars (Grade designation S 415) conforming to IS:1786.

Water

Water to be used in concreting and curing shall conform to clause 302.4 of IRC:21–1987.

(C) WORKMANSHIP/DETAILING

1. Minimum clear cover to any reinforcement including stirrups shall be 50mm unless shown otherwise in the drawings.
2. For ensuring proper cover of concrete to reinforcement bars specially made ploymer cover blocks shall only be used.
3. Construction joints
   - I. The location and provision of construction joints shall be approved by the Engineer–in–charge. The concreting operation shall be carried out continuously upto the construction joint.
   - II. The concrete surface at the joint shall be brushed with a stiff brush after casting while the concrete is still fresh and it has only slightly hardened.
   - III. Before new concrete is poured the surface of old concrete shall be prepared as under:
     - a) For hardened concrete, the surface shall be thoroughly cleaned to remove debris/laitance and made rough so that 1/4 of the size of the aggregate is exposed but without dislodging the aggregate or structurally damaging the concrete.
     - b) For partially hardened concrete, the surface shall be treated by wire brush followed by an air jet.
     - c) The old surface shall be soaked with water without leaving puddles immediately before starting concreting to prevent the absorption of water from new concrete.
   - IV. New concrete shall be thoroughly compacted in the region of the joint.
4. Welding of reinforcement bars shall not be permitted.
5. Laps in reinforcement:
   - I. Minimum lap length of reinforcement shall be kept as 83 d where 'd' is the diameter of bar.
   - II. Not more than 50% of reinforcement shall be lapped at any one location.
   - III. For closely spaced bars lapping may be avoided by providing suitable type of mechanical splices.
6. Bending of reinforcement bars shall be as per IS : 2502.
7. Supporting chairs of 12mm diameter shall be provided at suitable intervals as per IS : 2502.
8. Concrete shall be produced in a mechanical mixer of capacity not less than 200 litres having integral weigh–batching facility and automatic water measuring and dispensing device.
9. Proper compaction of concrete shall be ensured by use of full width screed vibrators for concrete in deck slab.
10. Properly braced steel plates shall be used as shuttering.
11. Sharp edges of concrete shall be chamfered.

(D) GENERAL SPECIFICATIONS

The work shall be executed in accordance with MOST's Specifications for Road and Bridge Works (Second Revision, 1988) except wherever otherwise mentioned.

(E) REFERENCE TO DRAWINGS

Drawing No.	Title
SD/152, SD/153 SD/154, SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)
SD/161–SD/164 SD/169–SD/172 SD/177–SD/180 SD/185–SD/188	R.C.C. SOLID SLAB SUPERSTRUCTURE (WITHOUT FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/165–SD/168 SD/173–SD/176 SD/181–SD/184 SD/189–SD/192	R.C.C. SOLID SLAB SUPERSTRUCTURE (WITH FOOTPATHS) FOR VARIOUS SKEW ANGLES

MKD	DATE	DESCRIPTION	BY

REVISION

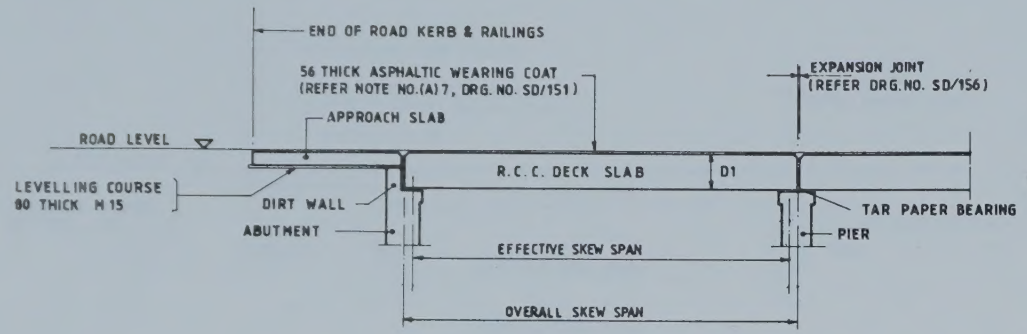
GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

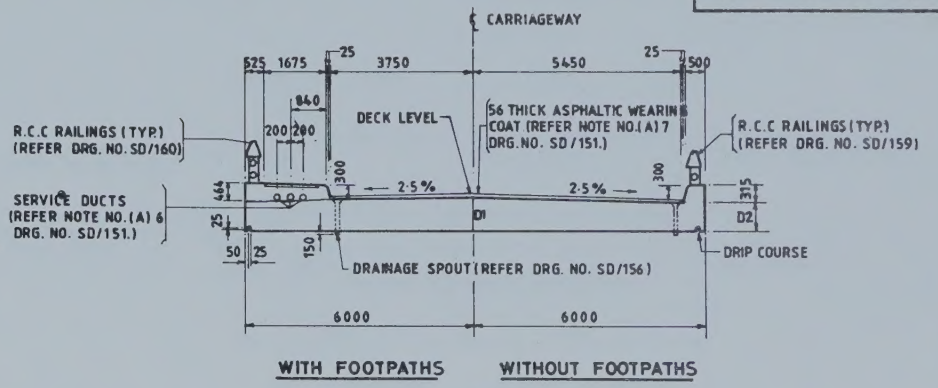
R.C.C. SOLID SLAB
SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m
(WITH AND WITHOUT FOOTPATHS)

GENERAL NOTES

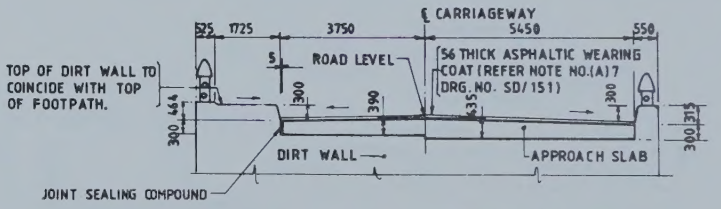
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) S.E.	(D.K. PASTOGI) S.E.	(M.K. MUGHEKAR) C.E.	DRG. NO. SD/151



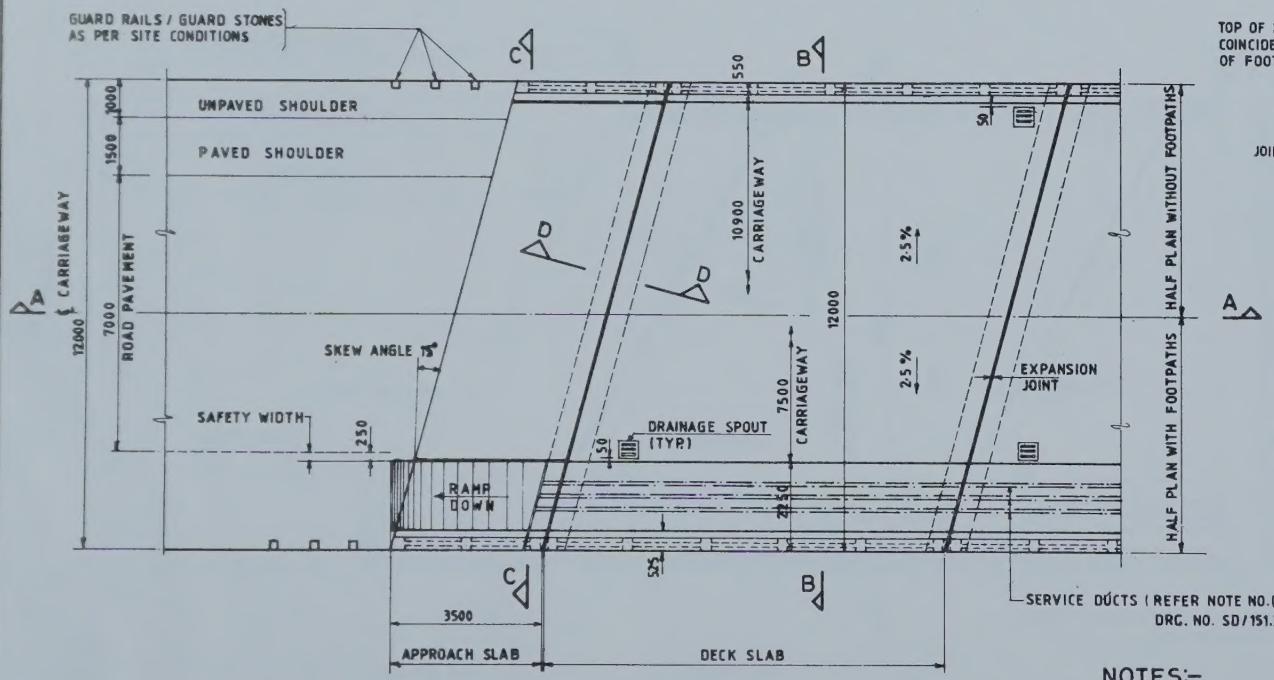
SECTION. A–A
(ROAD KERB & RAILINGS NOT SHOWN)



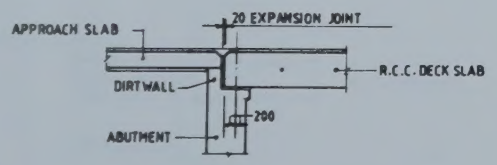
SECTION. B–B
(FOR VALUES OF D1 & D2 REFER RELEVANT DRAWINGS (DRGS. NO. SD/161 THROUGH SD/168)



SECTION. C–C



PLAN



SECTION D–D

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/156 THROUGH SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF RCC RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF RCC RAILINGS (WITH FOOTPATHS)
SD/161 THROUGH SD/164	RCC SOLID SLAB SUPERSTRUCTURE (SKEW 15° WITHOUT FOOTPATHS)
SD/165 THROUGH SD/168	RCC SOLID SLAB SUPERSTRUCTURE (SKEW 15° WITH FOOTPATHS)

NOTES:–

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Typical arrangement of drainage spouts has been shown in plan. Suitable modifications may be made by the Engineer-in-charge as per site conditions and intensity of rainfall.

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

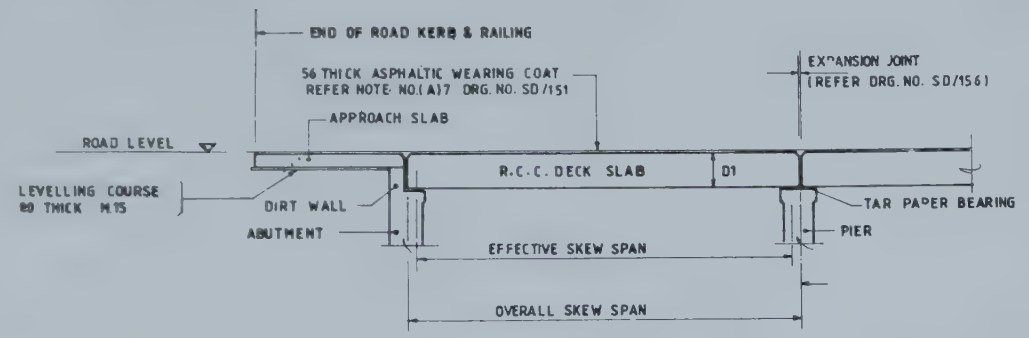
R.C.C. SOLID SLAB

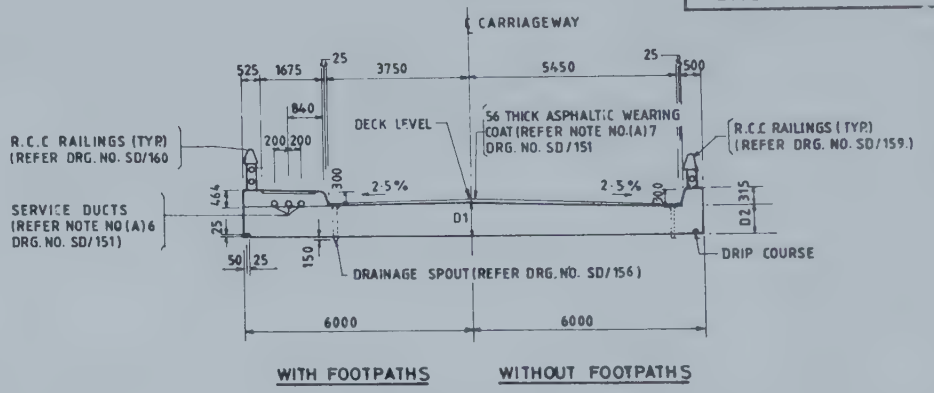
SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN
4·0; 6·0; 8·0; 10·0 M
(WITH AND WITHOUT FOOTPATHS)

GENERAL ARRANGEMENT

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R. H. SARMA) S.E.	(M. K. MUKHERJEE) C.E	DRG. NO. SD/152

DRG. NO. SD/153



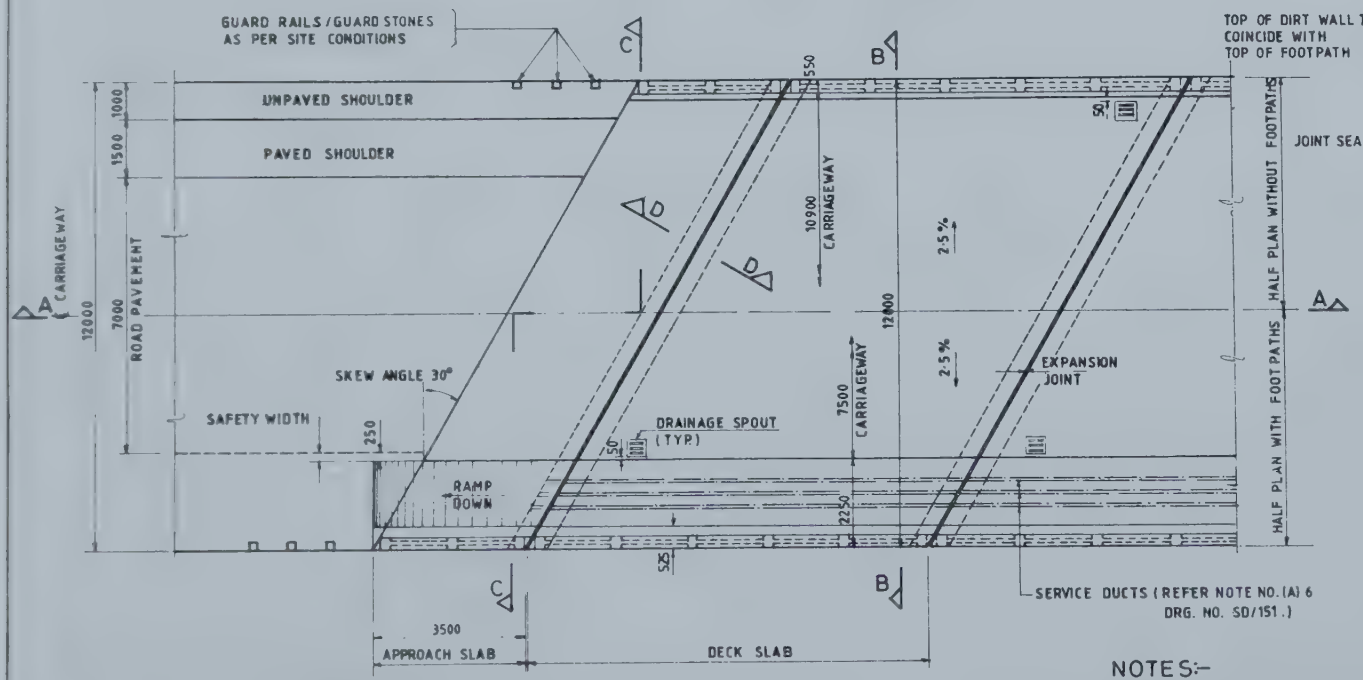


SECTION. B-B

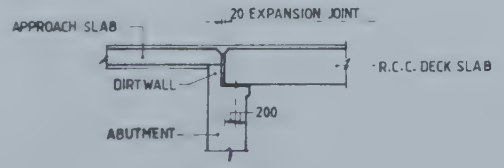
(FOR VALUES OF D1 & D2 REFER RELEVANT DRAWINGS (DRGS. NO. SD/169 THROUGH SD/176))

SECTION. A-A

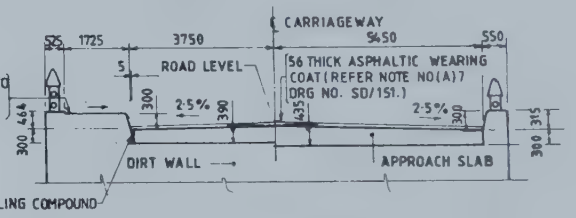
(ROAD KERB & RAILINGS NOT SHOWN)



PLAN



SECTION D-D



WITH FOOTPATHS WITHOUT FOOTPATHS

SECTION.C-C

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/156 THROUGH SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF RCC RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF RCC RAILINGS (WITH FOOTPATHS)
SD/169 THROUGH SD/172	RCC SOLID SLAB SUPERSTRUCTURE (SKEW 30° WITHOUT FOOTPATHS)
SD/173 THROUGH SD/176	RCC SOLID SLAB SUPERSTRUCTURE (SKEW 30° WITH FOOTPATHS)

NOTES:-

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Typical arrangement of drainage spout has been shown in plan. Suitable modifications may be made by the Engineer-in-charge as per site conditions & intensity of rainfall

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(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

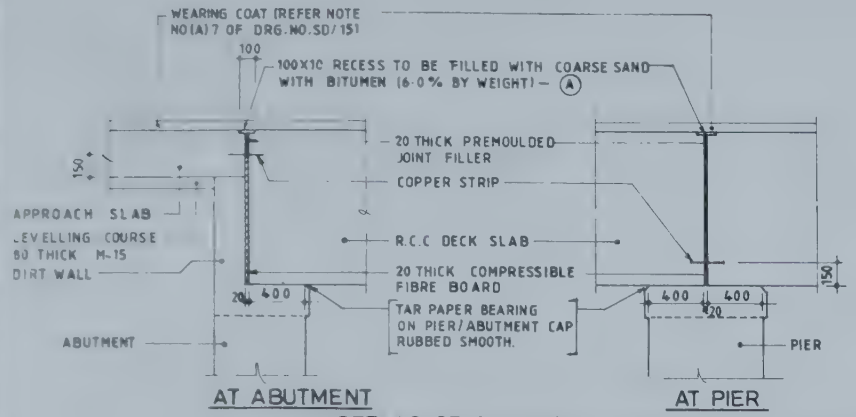
R.C.C. SOLID SLAB

SUPERSTRUCTURE 30° SKEW RIGHT EFFECTIVE SPAN
4.0; 6.0; 8.0; 10.0 M.
(WITH AND WITH OUT FOOTPATH)

GENERAL ARRANGEMENT

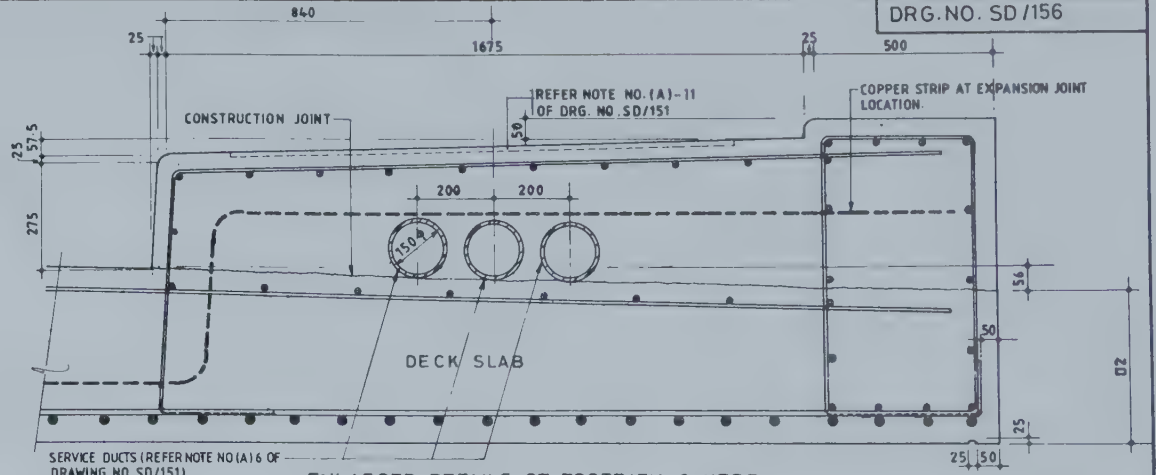
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E. E	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/153

DRG.NO. SD/156


WEARING COAT (REFER NOTE NO(A)7 OF DRG.NO.SD/151
100X10 RECESS TO BE FILLED WITH COARSE SAND WITH BITUMEN (6-0% BY WEIGHT) — (A)
20 THICK PREMOULDED JOINT FILLER
COPPER STRIP
R.C.C DECK SLAB
20 THICK COMPRESSIBLE FIBRE BOARD
TAR PAPER BEARING ON PIER/ABUTMENT CAP RUBBED SMOOTH.
APPROACH SLAB
LEVELLING COURSE 80 THICK M-15 DIRT WALL
ABUTMENT
PIER
AT ABUTMENT
AT PIER

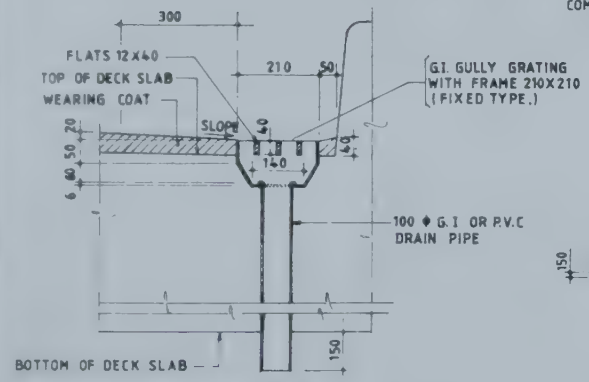
DETAILS OF EXPANSION JOINT

(RIGHT DIMENSION)

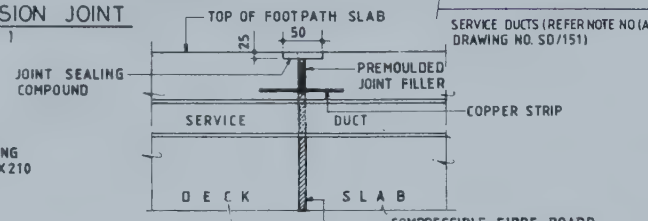

CONSTRUCTION JOINT
REFER NOTE NO.(A)-11 OF DRG. NO.SD/151
COPPER STRIP AT EXPANSION JOINT LOCATION
DECK SLAB
SERVICE DUCTS (REFER NOTE NO(A)6 OF DRAWING NO. SD/151)

ENLARGED DETAILS OF FOOTPATH & KERB

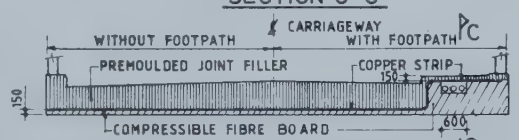
(FOR REINFORCEMENT DETAILS & VALUES OF D2 REFER RELEVANT DRAWINGS)
(RIGHT DIMENSIONS)


FLATS 12X40
TOP OF DECK SLAB
WEARING COAT
SLOPE
G.I. GULLY GRATING WITH FRAME 210X210 (FIXED TYPE.)
100 ϕ G.I OR P.V.C DRAIN PIPE
BOTTOM OF DECK SLAB

SECTION. A-A

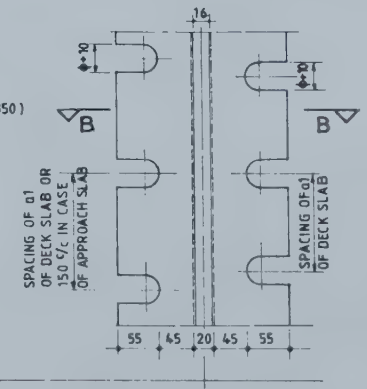


SECTION C-C

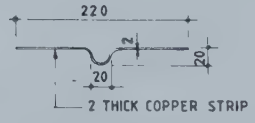


LAYOUT OF COPPER STRIP

(PIER LOCATION)



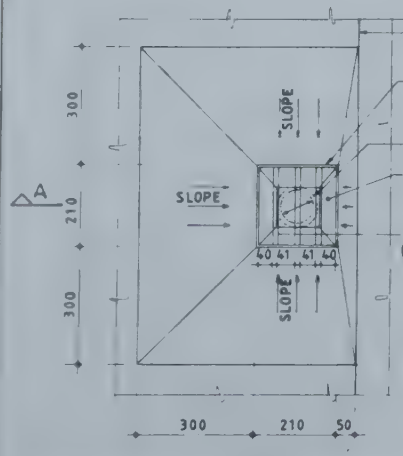
DETAIL OF COPPER STRIP



SECTION. B-B

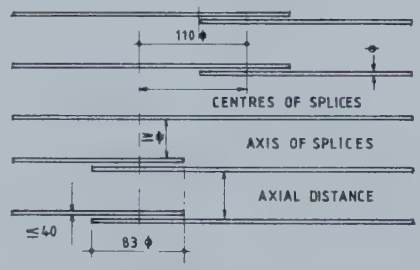
REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152 THROUGH SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/157, SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF RCC RAILINGS (WITH FOOTPATHS)
SD/161 - SD/164, SD/169 - SD/172, SD/177 - SD/180, SD/185 - SD/188	R.C.C SOLID SLAB SUPERSTRUCTURE (WITHOUT FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/165 - SD/168, SD/173 - SD/176, SD/181 - SD/184, SD/189 - SD/192	RCC SOLID SLAB SUPERSTRUCTURE (WITH FOOTPATHS) FOR VARIOUS SKEW ANGLES

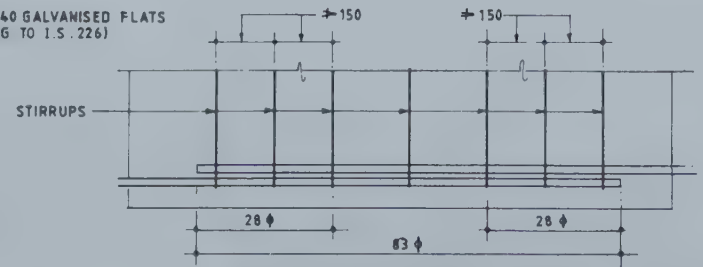


PLAN

(DETAILS OF DRAINAGE SPOUT & COLLECTION PIT)



LAP SPLICES OF BARS IN TENSION



TRANSVERSE REINFORCEMENT AT LAPS SPLICES IN KERBS

NOTES :-

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Splicing of main longitudinal bars in deck slab shall be avoided as far as practicable. In case the splicing of bars becomes unavoidable, the arrangement shall be as shown in the drawings.
3. Area of bars spliced at any section shall not exceed 50% of the total area of the bars provided at the section.
4. Joint filler shall conform to IS 1838. Products with I.S.I certification mark shall only be used.
5. The reinforcement of deck slab shall be suitably modified to accommodate the drainage spout. Also refer note no.2 of Drawing nos SD/152, SD/153, SD/154 or SD/155 The reinforcement marked f1 and f2 shall be modified in the region of inspection chamber.
6. The drainage spout shall be galvanised after welding the plates/flats

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REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

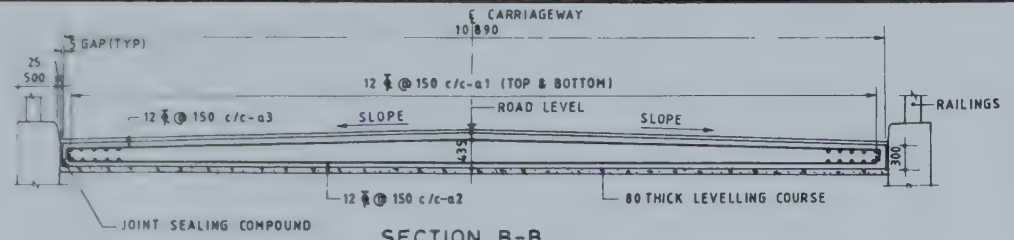
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m WITH AND WITHOUT FOOTPATHS

MISCELLANEOUS DETAILS

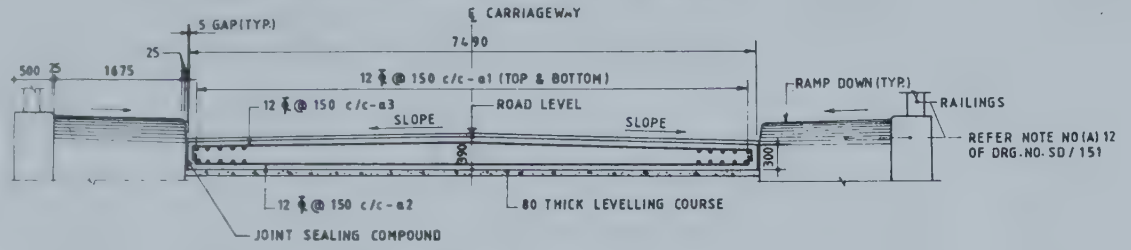
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E E	(R.H. SARMA) S.E	(M.K. MUKHERJEE) C.E.	DRG.NO. SD/156

DRG. NO. SD/157



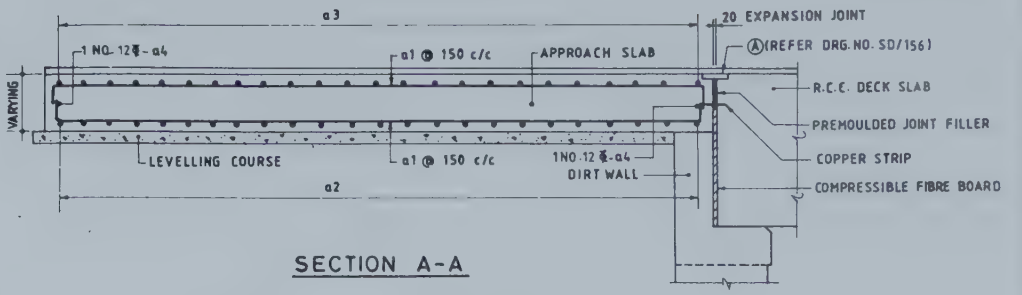
SECTION B-B

(FOR APPROACH SLAB ADJACENT TO DECK WITHOUT FOOTPATHS)

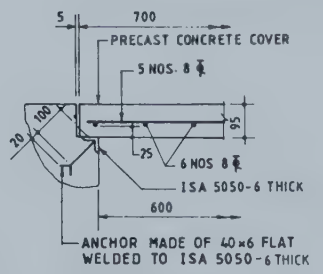


SECTION B-B

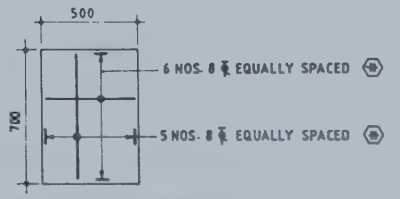
(FOR APPROACH SLAB ADJACENT TO DECK WITH FOOTPATHS)



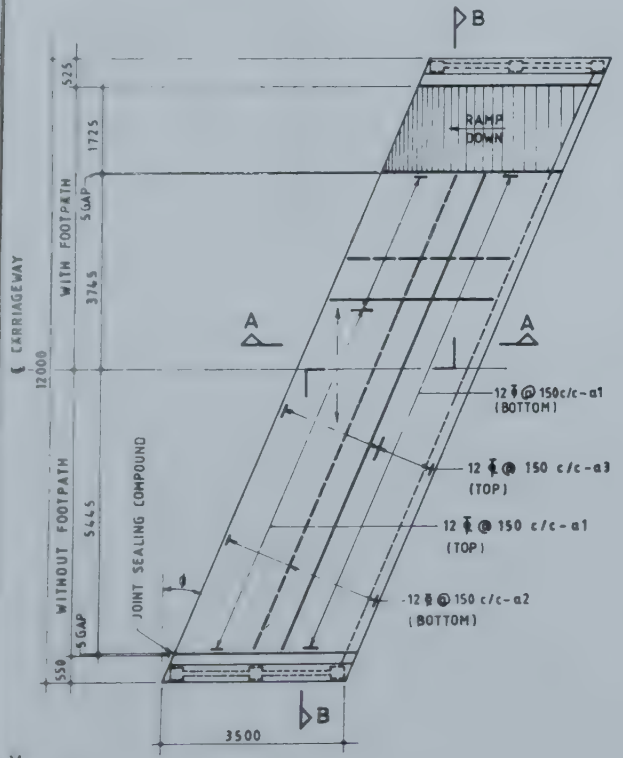
SECTION A-A



DETAIL - X

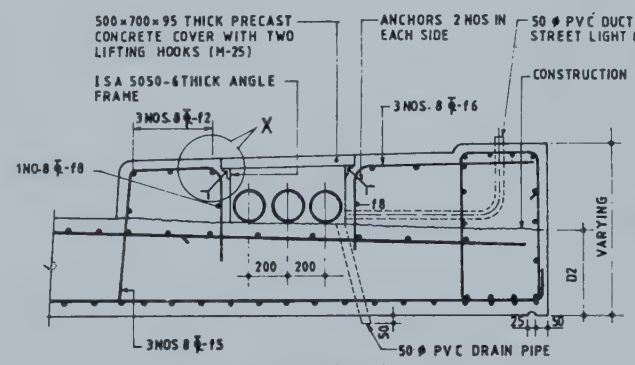


DETAILS OF PRECAST CONCRETE COVER FOR INSPECTION CHAMBER



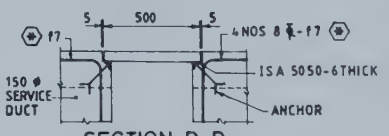
PLAN

(SHOWING REINFORCEMENT DETAILS OF APPROACH SLAB)
(ABUTMENT, DIRTWALL & LEVELLING COURSE NOT SHOWN)



SECTION C-C

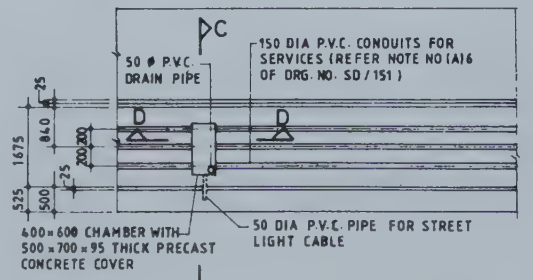
(REINFORCEMENT OF RAILING POST NOT SHOWN. REFER RELEVANT DRAWINGS. FOR VALUES OF D2 & DETAILS OF REINFORCEMENT)



SECTION D-D

(SHOWING SHAPE OF BARS IN THE REGION OF INSPECTION CHAMBER OTHER REINFORCEMENTS ARE NOT SHOWN)

Ⓐ Refer note No. 1 of DRG. No. SD/158



PART PLAN OF BRIDGE DECK

(SHOWING DETAILS OF INSPECTION CHAMBER IN FOOTPATH. THE LOCATION AND SPACINGS ALONG THE FOOTPATHS TO BE DECIDED BY ENGINEER-IN-CHARGE AS PER SITE CONDITIONS AND IN CONSULTATION WITH THE CONCERNED AUTHORITIES)

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152 THROUGH SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156, SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF R.C.C RAILINGS (WITH FOOTPATHS)
SD/161 - SD/164, SD/169 - SD/172, SD/177 - SD/180, SD/185 - SD/188	R.C.C SOLID SLAB SUPERSTRUCTURE (WITHOUT FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/165 - SD/168, SD/173 - SD/176, SD/181 - SD/184, SD/189 - SD/192	R.C.C SOLID SLAB SUPERSTRUCTURE (WITH FOOTPATHS) FOR VARIOUS SKEW ANGLES

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. The reinforcement of railing posts shall be incorporated before casting of deck slab. The railings shall conform to drawing no SD/159 or SD/160 or any other approved type.
3. Dimensions in schedule of reinforcement are given as per IS: 2502

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

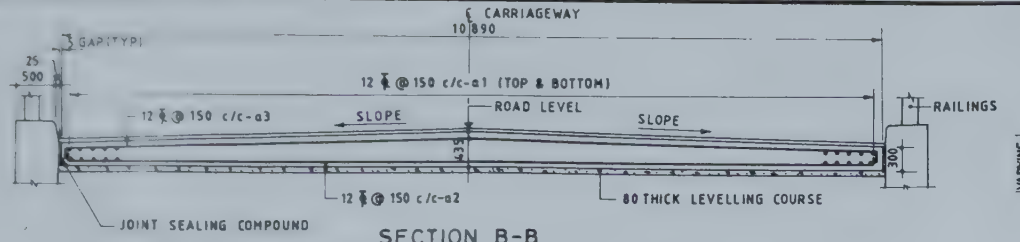
R.C.C. SOLID SLAB SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m

(WITH AND WITHOUT FOOTPATHS)

MISCELLANEOUS DETAILS

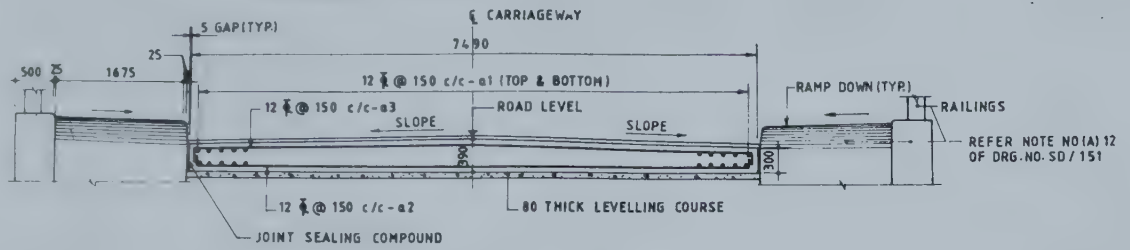
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/157

DRG. NO. SD/157



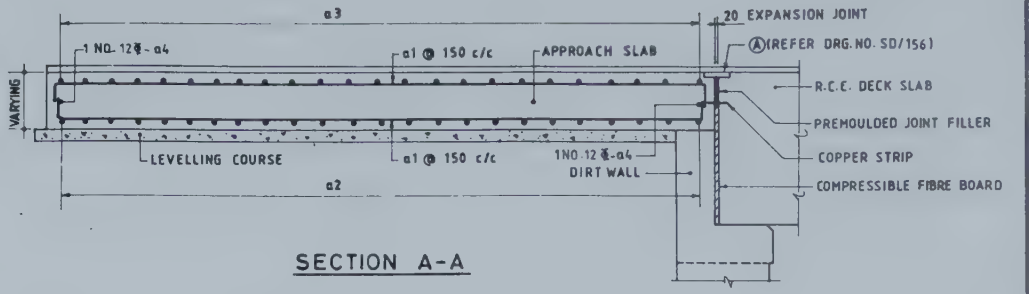
SECTION B-B

(FOR APPROACH SLAB ADJACENT TO DECK WITHOUT FOOTPATHS)

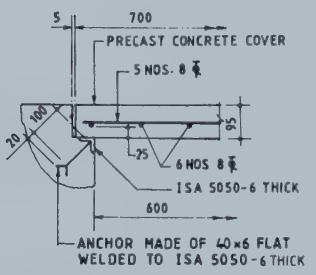


SECTION B-B

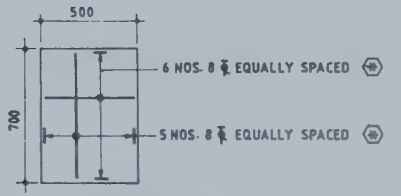
(FOR APPROACH SLAB ADJACENT TO DECK WITH FOOTPATHS)



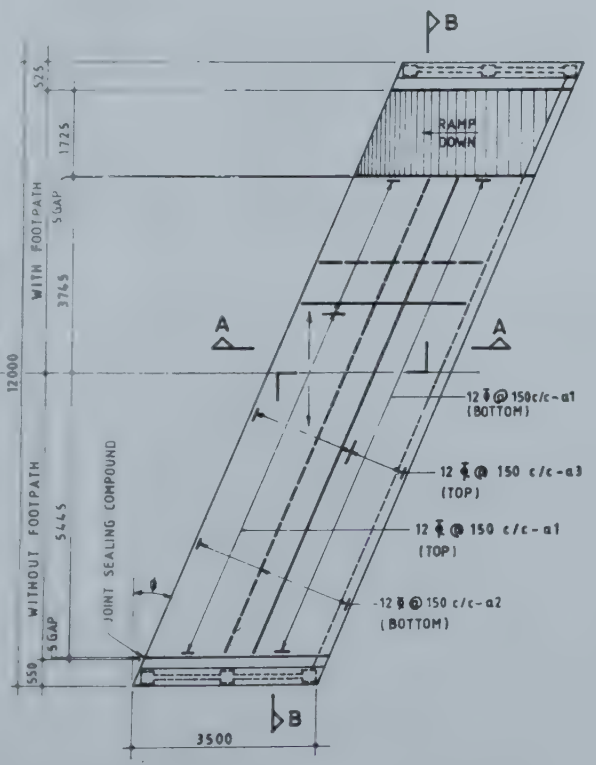
SECTION A-A



DETAIL - X

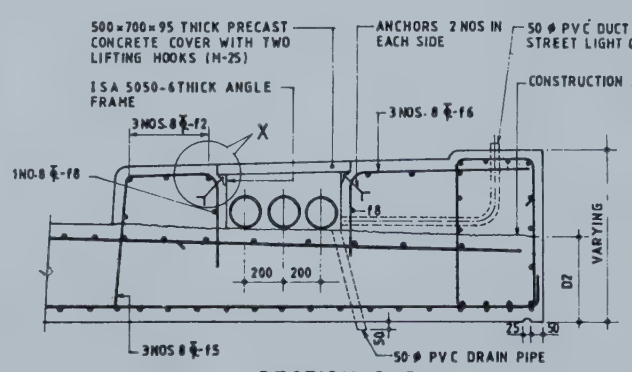


DETAILS OF PRECAST CONCRETE COVER FOR INSPECTION CHAMBER



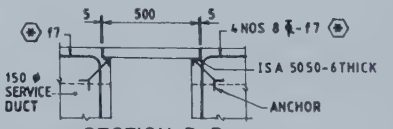
PLAN

(SHOWING REINFORCEMENT DETAILS OF APPROACH SLAB)
(ABUTMENT, DIRTWALL & LEVELLING COURSE NOT SHOWN)


500×700×95 THICK PRECAST CONCRETE COVER WITH TWO LIFTING HOOKS (M-25)
ANCHORS 2 NOS IN EACH SIDE
50 ϕ PVC DUCT FOR STREET LIGHT CABLE
ISA 5050-6 THICK ANGLE FRAME
CONSTRUCTION JOINT
3 NOS. 8 ϕ - f2
3 NOS. 8 ϕ - f6
X
1 NO. 8 ϕ - f8
f8
200
200
D2
VARYING
3 NOS 8 ϕ - f5
50 ϕ PVC DRAIN PIPE

SECTION C-C

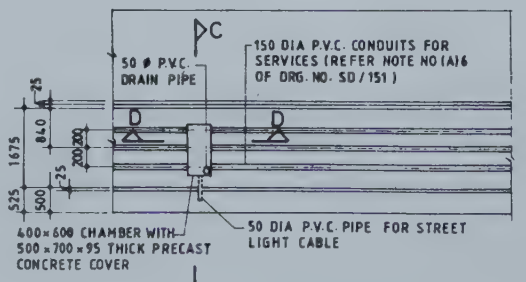
(REINFORCEMENT OF RAILING POST NOT SHOWN. REFER RELEVANT DRAWINGS. FOR VALUES OF D2 & DETAILS OF REINFORCEMENT)



SECTION D-D

(SHOWING SHAPE OF BARS IN THE REGION OF INSPECTION CHAMBER OTHER REINFORCEMENTS ARE NOT SHOWN)

(*) Refer note No.1 of DRG.No. SD/158



PART PLAN OF BRIDGE DECK

(SHOWING DETAILS OF INSPECTION CHAMBER IN FOOTPATH. THE LOCATION AND SPACINGS ALONG THE FOOTPATHS TO BE DECIDED BY ENGINEER-IN-CHARGE AS PER SITE CONDITIONS AND IN CONSULTATION WITH THE CONCERNED AUTHORITIES)

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152 THROUGH SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156, SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF R.C.C RAILINGS (WITH FOOTPATHS)
SD/161 - SD/164	
SD/169 - SD/172	R.C.C SOLID SLAB SUPERSTRUCTURE (WITHOUT
SD/177 - SD/180	FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/185 - SD/188	
SD/165 - SD/168	
SD/173 - SD/176	R.C.C SOLID SLAB SUPERSTRUCTURE (WITH
SD/181 - SD/184	FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/189 - SD/192	

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. The reinforcement of railing posts shall be incorporated before casting of deck slab. The railings shall conform to drawing no SD/159 or SD/160 or any other approved type.
3. Dimensions in schedule of reinforcement are given as per IS:2502

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m

(WITH AND WITHOUT FOOTPATHS)

MISCELLANEOUS DETAILS

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/157

SCHEDULE OF REINFORCEMENT – 15° SKEW (PER APPROACH SLAB)

SL.NO.	LOCATION	BAR MKD	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
APPROACH SLAB ADJACENT TO DECK WITHOUT FOOTPATHS									
1	SLAB TOP & BOTTOM ALONG-X	a1	200 3400 R=48 200	12	150	3728	146	544.29	490
2	SLAB BOTTOM ALONG-N	a2	150 R=48 11174 150	12	150	11402	23	262.25	236
3	SLAB TOP ALONG-N	a3	150 5589 5589 R=48 150	12	150	11406	23	262.34	236
APPROACH SLAB ADJACENT TO DECK WITH FOOTPATHS									
4	SLAB TOP & BOTTOM ALONG-X	a1	200 3400 R=48 200	12	150	3728	101	376·53	339
5	SLAB BOTTOM ALONG-N	a2	150 R=48 7651 150	12	150	7879	23	181.22	163
6	SLAB TOP ALONG-N	a3	150 3826 3826 R=48 150	12	150	7880	23	181.24	163

SCHEDULE OF REINFORCEMENT -30° SKEW (PER APPROACH SLAB)

SL.NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
APPROACH SLAB ADJACENT TO DECK WITHOUT FOOTPATHS									
1	SLAB TOP & BOTTOM ALONG-X	a1	200 3400 R=48 200	12	150	3728	146	544.29	490
2	SLAB BOTTOM ALONG-N	a2	150 R=48 12459 150	12	150	12687	21	266.43	240
3	SLAB TOP ALONG-N	a3	150 6231 6231 R=48 150	12	150	12690	21	266.49	240
APPROACH SLAB ADJACENT TO DECK WITH FOOTPATHS									
4	SLAB TOP & BOTTOM ALONG-X	a1	200 3400 R=48 200	12	150	3728	101	376·53	339
5	SLAB BOTTOM ALONG-N	a2	150 R=48 8533 150	12	150	8761	21	183·98	166
6	SLAB TOP ALONG-N	a3	150 4268 4268 R=48 150	12	150	8764	21	184.04	166

QUANTITIES – 15° SKEW

CONCRETE IN APPROACH SLAB (cu.m)	WITH FOOTPATHS	9·04
	WITHOUT FOOTPATHS	14·01
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	WITH FOOTPATHS	698
	WITHOUT FOOTPATHS	1010
ASPHALTIC WEARING COAT (sq.m)	WITH FOOTPATHS	26.22
	WITHOUT FOOTPATHS	38.12

QUANTITIES - 30° SKEW

CONCRETE IN APPROACH SLAB (cu.m)	WITH FOOTPATHS	9·04
	WITHOUT FOOTPATHS	14·01
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	WITH FOOTPATHS	705
	WITHOUT FOOTPATHS	1019
ASPHALTIC WEARING COAT (sq.m)	WITH FOOTPATHS	26.22
	WITHOUT FOOTPATHS	38·12

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152, SD/153	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156, SD/157	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R C C RAILINGS (WITHOUT FOOTPATHS)
SD/160	DETAILS OF R C C RAILINGS (WITH FOOTPATHS)
SD/161 - SD/164, SD/169 - SD/172, SD/177 - SD/180, SD/185 - SD/188	R C C SOLID SLAB SUPERSTRUCTURE (WITHOUT FOOTPATHS) FOR VARIOUS SKEW ANGLES
SD/165 - SD/168, SD/173 - SD/176, SD/181 - SD/184, SD/189 - SD/192	R C C SOLID SLAB SUPERSTRUCTURE (WITH FOOTPATHS) FOR VARIOUS SKEW ANGLES

NOTE :–

1. Schedule of reinforcement does not include change in reinforcement around inspection chamber, precast cover to chamber and railings.

MKD	DATE	DESCRIPTION	BY

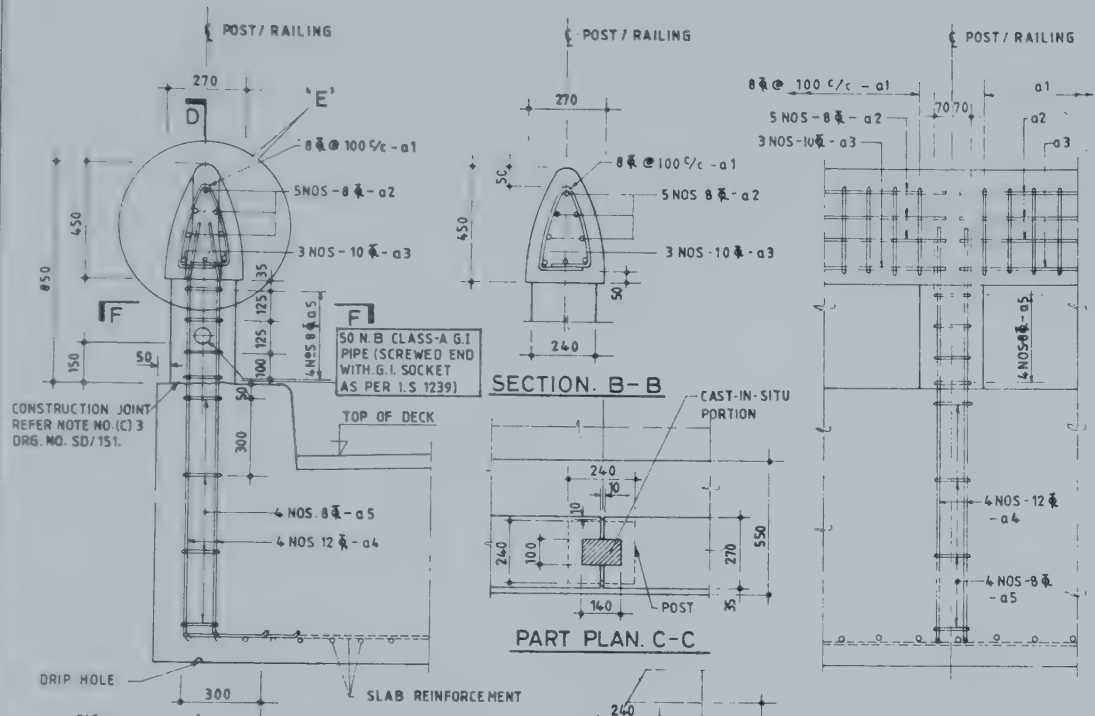
REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE SPAN 4·0m TO 10·0m 15° AND 30° SKEW (WITH AND WITHOUT FOOTPATHS) MISCELLANEOUS DETAILS

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG NO SD/158 SHEET 1/2



SCHEDULE OF REINFORCEMENT FOR RAILING ON ONE SIDE

SL.NO	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH(m)	WEIGHT (Kg)
1	RAILINGS	a1	268 / 268 / 134	8	100	850	$\left[\frac{A-160}{100}+1\right]\times N$ = N1	N1 × $\frac{850}{1000}$ = L1	L1 × 0.40
2	RAILINGS	a2	——	8	—	(A-50) **	5 × N = N2	$\frac{N2\times(A-50)}{1000}$ = L2	L2 × 0.40
3	RAILINGS	a3	——	10	—	(A-50) **	3 × N = N3	$\frac{N3\times(A-50)}{1000}$ ≃ L3	L3 × 0.60
4	POST	a4	225 h 300 / h 225* 300	12	—	h + 489	4 × (N + 1) = N4	$\frac{h+489\times N4}{1000}$ ≃ L4	L4 × 0.90
5	POST	a5	124 / 124	8	—	688	8 × (N + 1) = N5	$\frac{688\times N5}{1000}$ ≃ L5	L5 × 0.40

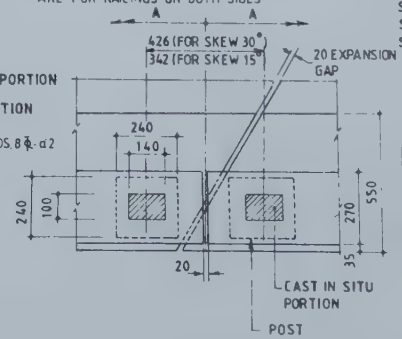
* FOR END POST INNER TWO BARS, THE SHAPE IS h L 300

** END DISTANCE FOR a2 & a3 BARS IS KEPT AS 25mm.

QUANTITIES (PER SPAN)

EFFECTIVE SPAN (m)	NUMBER OF DIVISIONS 'N'	A (mm)	h (mm)	QUANTITY STEEL (Kg) ⊛	CONCRETE (m3) RAILING	CONCRETE (m3) RAIL POSTS
SKEW 15°						
4	3	1518	1024	138	0.69	0.18
6	4	1657	1120	190	1.01	0.23
8	5	1739	1270	255	1.33	0.27
10	6	1795	1415	304	1.66	0.32
SKEW 30°						
4	3	1693	1024	149	0.77	0.18
6	4	1848	1120	209	1.14	0.23
8	6	1617	1270	284	1.48	0.31
10	7	1716	1415	347	1.84	0.36

⊛ STEEL QUANTITIES INCLUDE 5% EXTRA FOR LAPS & WASTAGE THE QUANTITIES ARE FOR RAILINGS ON BOTH SIDES



PART PLAN H-H

NOTES :—

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. The maximum size of aggregate to be used for precast concrete work shall be limited to 12mm.
3. The spacing 'A' shown in the elevation shall be adjusted to suit the length of the bridge span for which the railing is used but in no case shall its value exceed 2000.
4. The details of reinforcement in kerb and deck slab have not been shown in the drawing.
5. Railings to be built after the structural concrete of superstructure has hardened and the shuttering of the superstructure is released.
6. Railings shall be carefully constructed true to line and grade. Post shall be vertical with a tolerance not to exceed 1 in 500
7. Special care shall be taken to match the surface of the cast-in-situ portion.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152 THROUGH SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156 THROUGH SD/158	MISCELLANEOUS DETAILS
SD/161 — SD/164 SD/169 SD/172 SD/177 SD/180 SD/185 SD/188	R.C.C SOLID SLAB SUPERSTRUCTURE (WITHOUT FOOTPATHS) FOR VARIOUS SKEW ANGLES

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

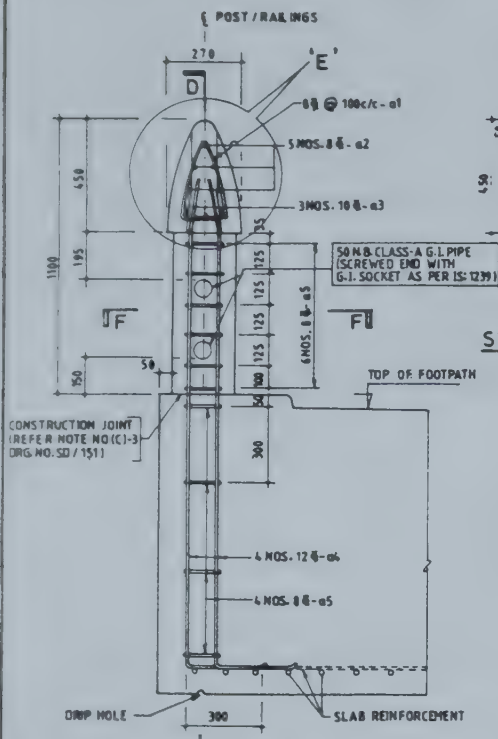
R.C.C. SOLID SLAB SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m

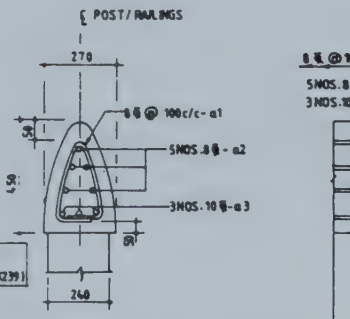
(WITHOUT FOOTPATHS)

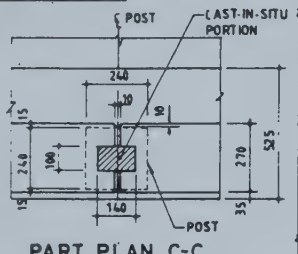
DETAILS OF R.C.C. RAILINGS

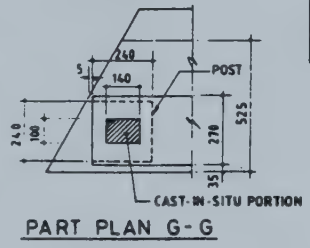
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E E	(R.H. SARMA) S.E	(M.K. MUKHERJEE) C.E	DRG NO. SD/159 SHT. 1/2

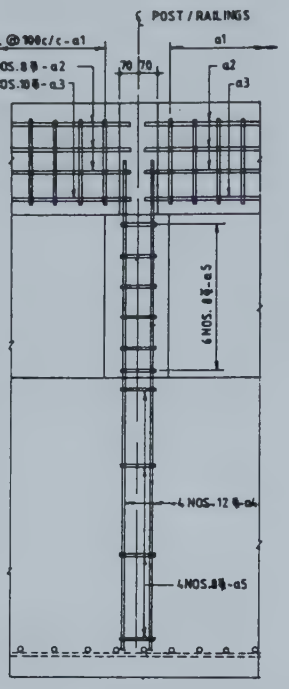
DRG. NO. SD/160-1/2

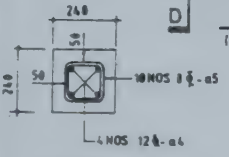


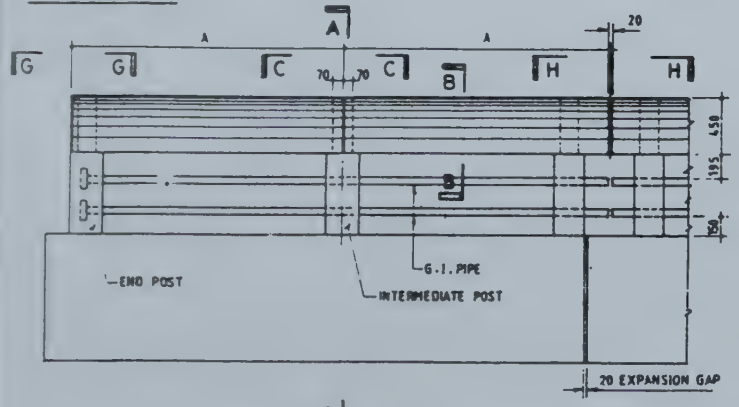


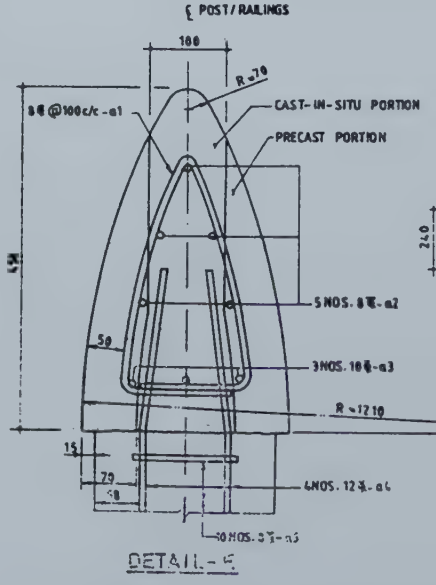


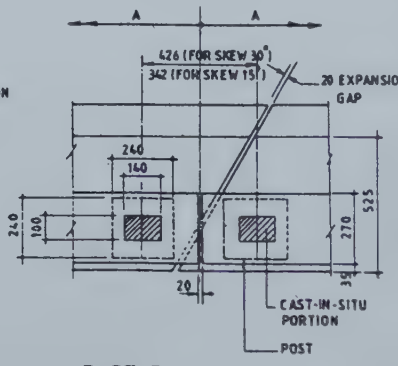












SCHEDULE OF REINFORCEMENT FOR RAILING ON ONE SIDE

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	RAILINGS	a1	240 850	8	100	850	$\frac{A-160}{100}+1=N$ $=N1$	$N1=\frac{850}{1000}$ $=L1$	L1 = 0.68
2	RAILINGS	a2	⇔ (A-50)	8	–	⇔ (A-50)	S = N $=N2$	$N2=\frac{(A-50)}{1000}$ $=L2$	L2 = 0.60
3	RAILINGS	a3	⇔ (A-50)	10	–	⇔ (A-50)	3 = N $=N3$	$N3=\frac{(A-50)}{1000}$ $=L3$	L3 = 0.60
4	POST	a4	h 225 300	12	–	h+489	4 = (N+1) $=N4$	$\frac{h+489}{1000}=N4$ $=L4$	L4 = 0.90
5	POST	a5	124 124	8	–	688	10 = (N+1) $=N5$	$\frac{6\,8\,8}{1000}=N5$ $=L5$	L5 = 0.40

* FOR END POST INNER TWO BARS THE SHAPE IS h 300

⇔ END DISTANCE FOR a2 & a3 BARS IS KEPT AS 25 mm

QUANTITIES (PER SPAN)

EFFECTIVE SPAN (m)	NUMBER OF DIVISIONS 'N'	A (m.m.)	h (mm)	QUANTITY STEEL (Kg) ⊛	CONCRETE (m³) RAILING	CONCRETE (m³) RAIL POSTS
SKEW 15°						
4	3	1518	1409	153	0.69	0.29
6	4	1657	1505	210	1.01	0.36
8	5	1739	1655	271	1.33	0.44
10	6	1795	1800	334	1.66	0.51
SKEW 30°						
4	3	1693	1409	166	0.77	0.29
6	4	1848	1505	225	1.14	0.36
8	6	1617	1655	313	1.48	0.51
10	7	1716	1800	381	1.84	0.58

⊛ STEEL QUANTITIES INCLUDE 5% EXTRA FOR LAPS & WASTAGE. THE QUANTITIES ARE FOR RAILINGS ON BOTH SIDES.

NOTES

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. The maximum size of aggregate to be used for precast concrete work shall be limited to 12 mm.
3. The spacing 'A' shown in the elevation shall be adjusted to suit the length of the bridge span for which the railing is used but in no case shall its value exceed 2000.
4. The details of reinforcement in kerb and deck slab have not been shown in the drawing.
5. Railings to be built after the structural concrete of superstructure has hardened and the shuttering of the superstructure is released.
6. Railings shall be carefully constructed true to the line and grade. Post shall be vertical with a tolerance not to exceed 1 in 500.
7. Special care shall be taken to match the surface of the cast-in-situ portion.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152 THROUGH SD/155	GENERAL ARRANGEMENT FOR VARIOUS SKEW ANGLES
SD/156 THROUGH SD/158	MISCELLANEOUS DETAILS
SD/165 - SD/168, SD/173 - SD/176, SD/181 - SD/184, SD/189 - SD/192	R.C.C. SOLID SLAB SUPERSTRUCTURE (WITH FOOTPATHS) FOR VARIOUS SKEW ANGLES.

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

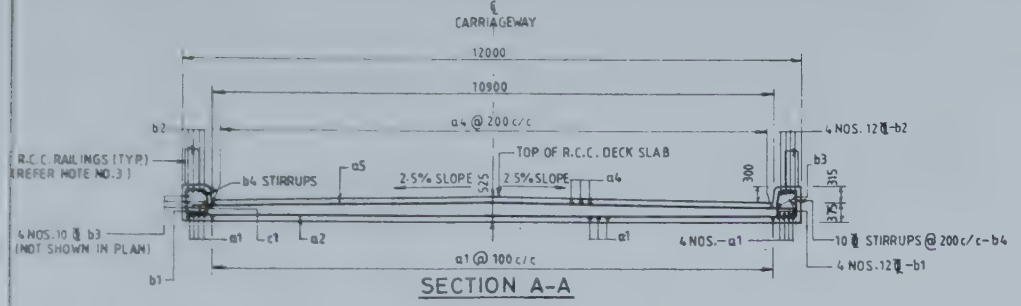
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (SKEW) SPAN 4.0m TO 10.0m (WITH FOOTPATHS)

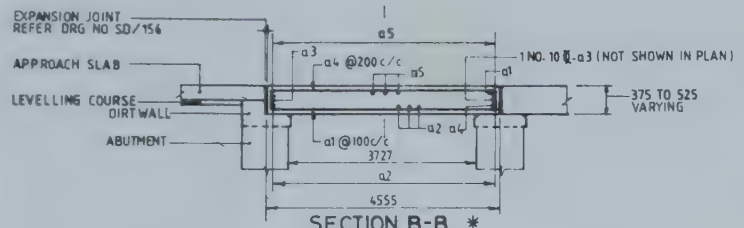
DETAILS OF R.C.C. RAILINGS

RECOMM. | DESIGNED | DRAWN | CHECKED | DATE | SUPERVISED | DRG. NO.

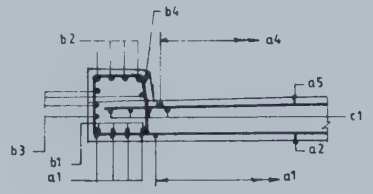
DRG. NO. SD/161



SECTION A-A



SECTION B-B *

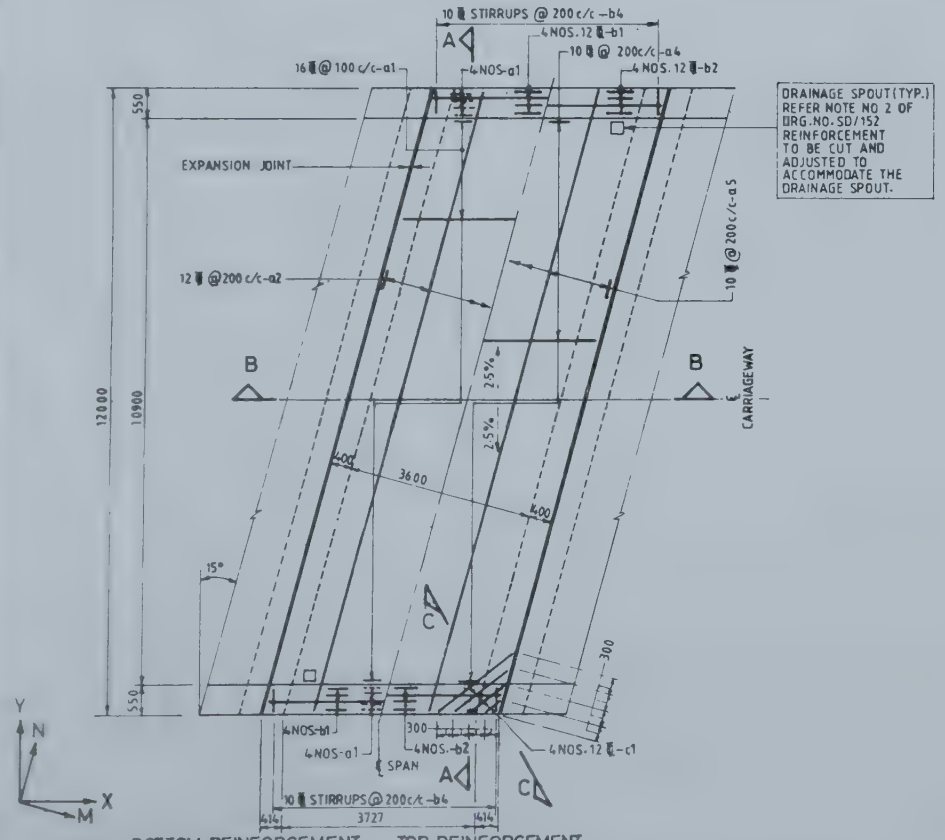


SECTION C-C

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-X	a1	250 R=64 250 / 4455	16	100	4859	118	573.36	917
2	SLAB-BOTTOM ALONG-N	a2	200 R=48 200 / 12320	12	200	12648	23	290.90	262
3	SLAB-SIDE ALONG-N	a3	12320	10	–	12320	2	24.64	15
4	SLAB-TOP ALONG-X	a4	4455 / 250 R=40 250	10	200	4895	55	269.23	162
5	SLAB-TOP ALONG-N	a5	6005 6005 / 345	10	200	12010	23	276.23	166
6	KERB-BOTTOM	b1	350 R=48 350 / 4423	12	–	5051	8	40.41	36
7	KERB-TOP	b2	4455 / 350 R=48 350	12	–	5083	8	40.66	37
8	KERB-SIDES	b3	4423	10	–	4423	8	35.38	21
9	KERB-STIRRUPS	b4	240 405 555 / 430	10	200	2144	46 (*)	98.62	59
10	SLAB-TOP (OBTUSE ANGLE CORNER)	c1	VARIES 376 TO 1804	12	300	–	8	8.72	8

(*) DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS. REFER DRG. NO. SD/156



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

Dead load of the superstructure per span including R.C.C. Railings @ 3kN/m & wearing coat @ 2kN/sq.m.=753 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	4.0
CONCRETE (cu.m.)	26.1
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	1768
ASPHALTIC WEARING COAT (sq.m)	49.65

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attension is invited to note(B)-1 of drg. no. SD/ 151 regarding the design mix to be adopted.
3. The reinforcement of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drg. no. SD/ 159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.

* 5. Reinforcement of adjacent span superstructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

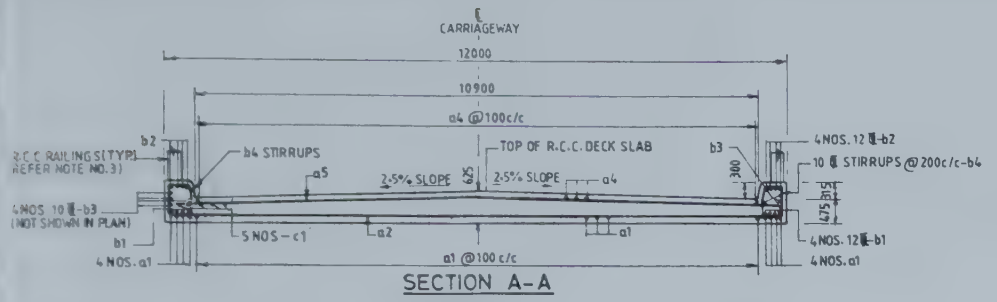
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 4.0m

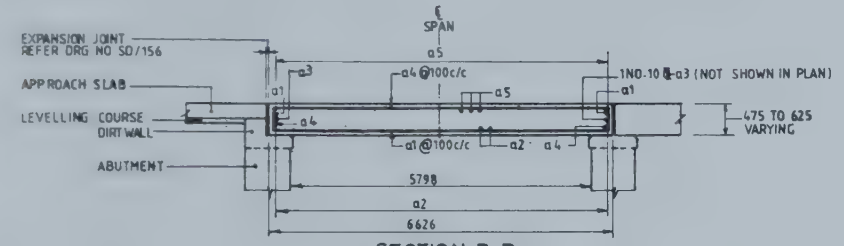
(WITHOUT FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1962
(ASHOK KUMAR) E.E.	(R.H.SARMA) S.E.	(M.K.MUKHERJEE) C.E.	DRG. NO. SD/161

DRG. NO. SD/162



SECTION A-A



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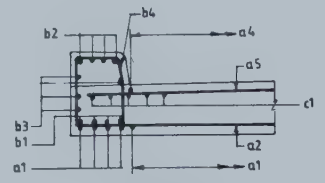

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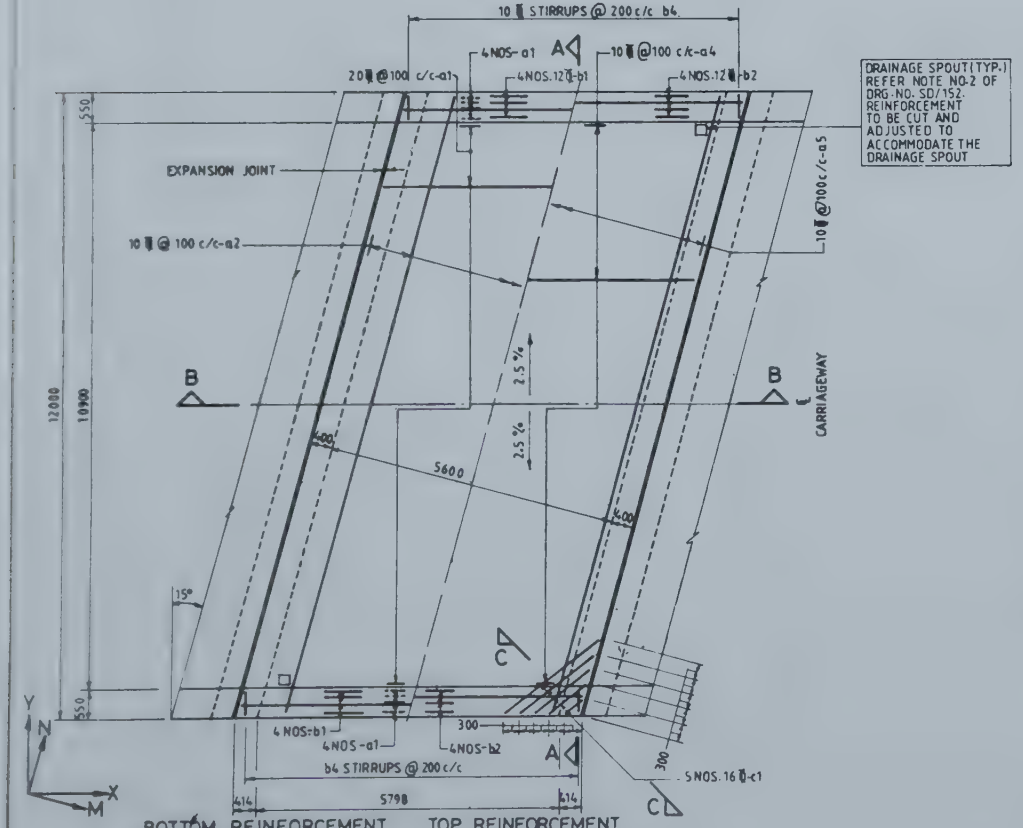


BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-X	a1	325 R=80 325 / 6526	20	100	7056	118	832.61	2082
2	SLAB-BOTTOM ALONG-N	a2	250 R=40 250 / 12320	10	100	12760	64	816.64	490
3	SLAB-SIDES ALONG-N	a3	12320	10		12320	2	24.64	15
4	SLAB-TOP ALONG-X	a4	6526 / 325 R=40 325	10	100	7116	110	782.76	470
5	SLAB-TOP ALONG-N	a5	145 + 6005 6005	10	100	12010	64	768.64	461
6	KERB-BOTTOM	b1	400 R=48 400 / 6486	12	–	7214	8	57.71	52
7	KERB-TOP	b2	6526 / 400 R=48 400	12	–	7254	8	58.03	52
8	KERB-SIDES	b3	6486	10	–	6486	8	51.89	31
9	KERB-STIRRUPS	b4	345 206 405 650 430	10	200	2336	66 (*)	154.18	93
10	SLAB-TOP (OBTUSE ANGLE CORNER)	c1	VARIES 376 TO 2280	16	300	–	10	13.28	21

(*) DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS, REFER DRG.NO. SD/156

Dead load of the superstructure per span including R.C.C Railings @3 kN/m & wearing coat @ 2 kN/sq.m. = 1287 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m.)	6.0
CONCRETE (cu.m.)	45.9
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	3956
ASPHALTIC WEARING COAT (sq.m.)	72.23

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B) -1 of drg.no.SD/151 regarding the design mix to be adopted.
3. The reinforcement for railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drg. no. SD/159 or any other approved type
4. Dimensions in schedule of reinforcement are given as per IS : 2502.
5. * Reinforcement of adjacent span superstructure approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156 SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF RCC RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

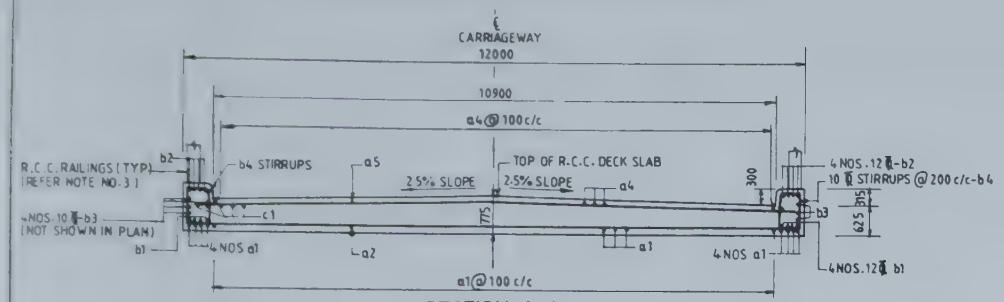
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 6.0 m

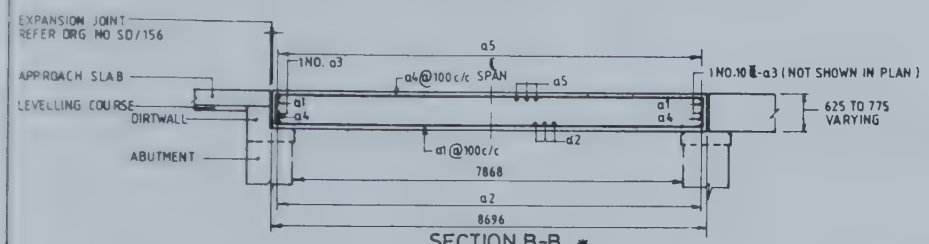
(WITHOUT FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R.H.SARMA) S.E	(M.K.MUKHERJEE) C.E	DRG NO SD/162

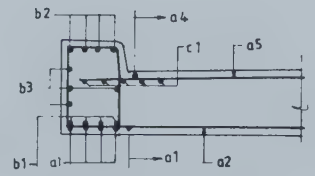
DRG NO. SD/163



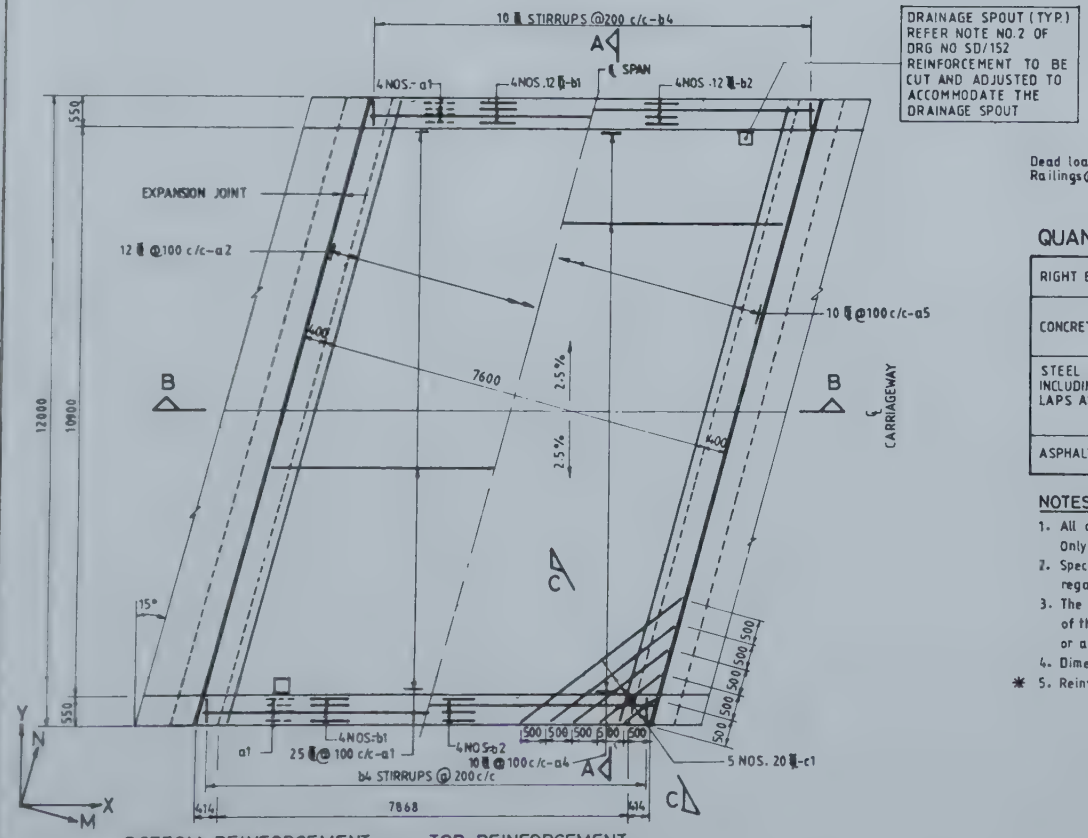
SECTION A-A



SECTION B-B *



SECTION C-C



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-X	a1	400 R=100 400 / 8596	25	100	9246	118	1091.03	414.6
2	SLAB-BOTTOM ALONG-N	a2	300 R=48 300 / 12320	12	100	12848	84	1079.23	97.1
3	SLAB-SIDE ALONG-N	a3	12320	10	—	12320	2	24.64	15
4	SLAB-TOP ALONG-X	a4	8596 / 400 R=40 400	10	100	9336	110	1026.96	61.6
5	SLAB-TOP ALONG-N	a5	6005 6005 / 145	10	100	12010	84	1008.84	60.5
6	KERB-BOTTOM	b1	500 R=48 500 / 8546	12	—	9474	8	75.79	6.8
7	KERB-TOP	b2	8596 / 500 R=48 500	12	—	9524	8	76.19	6.9
8	KERB-SIDE	b3	8546	10	—	8546	8	68.36	4.1
9	KERB-STIRRUPS	b4	498 306 405 / 795 / 430	10	200	2626	88 (*)	231.08	13.9
10	SLAB-TOP (OBTUSE ANGLE CORNER)	c1	VARIES 694 TO 3867	20	—	—	10	22.80	5.7

(*) DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS — REFER DRG. NO. SD/156.

Dead load of the superstructure per span including R.C.C. Railings @3kN/m. & wearing coat @ 2kN/sq.m = 2064 kN.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	8.0
CONCRETE (cu.m.)	75.92
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	7064
ASPHALTIC WEARING COAT (sq.m.)	94.79

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drg. no. SD/151. regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drg. no. SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

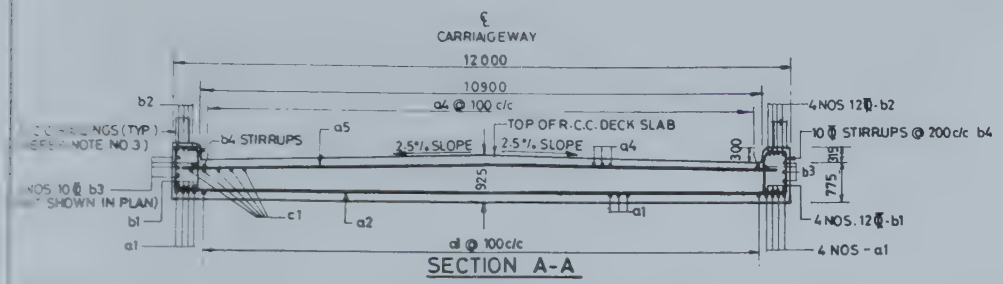
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 8.0m

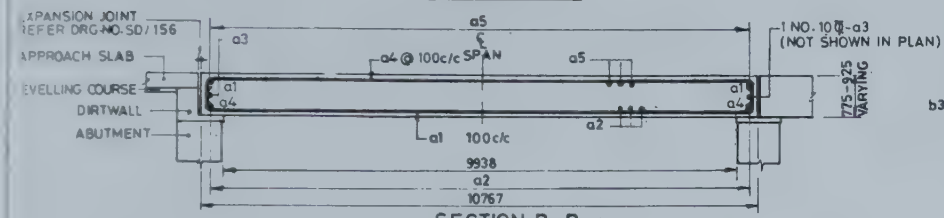
(WITHOUT FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R. H SARMA) S.E	(M K MUKHERJEE) C.E.	DRG NO. SD/163

DRG. NO. SD/164



SECTION A-A



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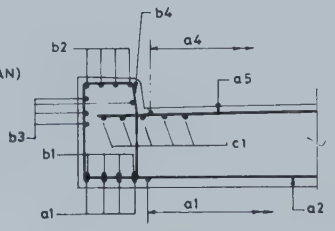
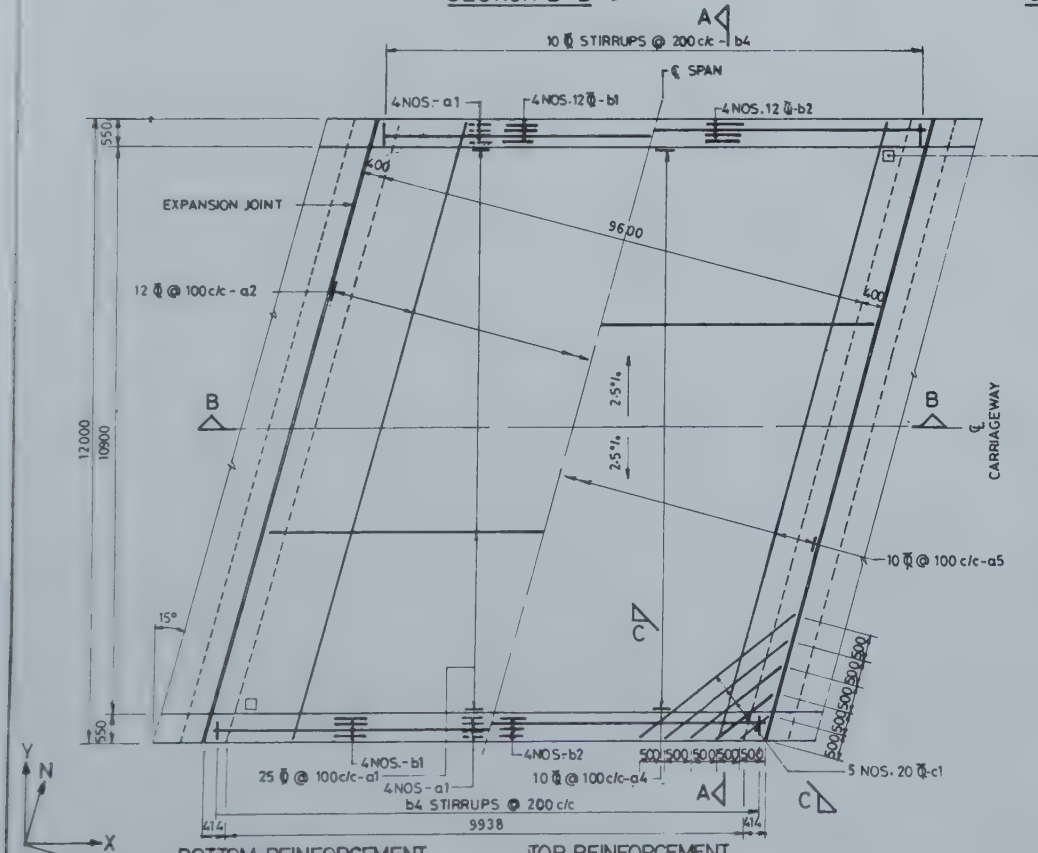


SECTION C-C



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

DRAINAGE SPOUT (TYP.) REFER NOTE NO 2 OF DRG. NO. SD/152 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMODATE THE DRAINAGE SPOUT

Dead load of the superstructure per span including R.C.C Railings @ 3 kN/m & wearing coat @ 2 kN/sq.m.=3021 kN

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-X	a1	500 R=100 500 / 10666	25	100	11516	118	1358.89	5164
2	SLAB-BOTTOM ALONG-N	a2	300 R=48 300 / 12320	12	100	12848	104	1336.19	1203
3	SLAB-SIDE ALONG-N	a3	12320	10	—	12320	2	24.64	15
4	SLAB-TOP ALONG-X	a4	10666 / 500 R=40 500	10	100	11606	110	1276.66	766
5	SLAB-TOP ALONG-N	a5	6005 6005	10	100	12010	104	1249.04	749
6	KERB-BOTTOM	b1	650 R=48 650 / 10616	12	—	11844	8	94.75	85
7	KERB-TOP	b2	10666 / 650 R=48 650	12	—	11894	8	95.15	86
8	KERB-SIDES	b3	10616	10	—	10616	8	84.92	51
9	KERB-STIRRUPS	b4	640 475 945 / 430	10	200	2926	108 ⊛	316.01	190
10	SLAB-TOP (OBTUSE ANGLE CORNER)	c1	VARIES 694 TO 3868	20	—	—	10	22.80	57

⊛ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS, REFER DRG.NO.SD/156

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	10.0
CONCRETE (cu.m.)	113.4
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (KG)	8785
ASPHALTIC WEARING COAT (sq.m.)	117.36

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drg. no. SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drg.no.SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS:2502.
5. * Reinforcement of adjacent span supestructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156 SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

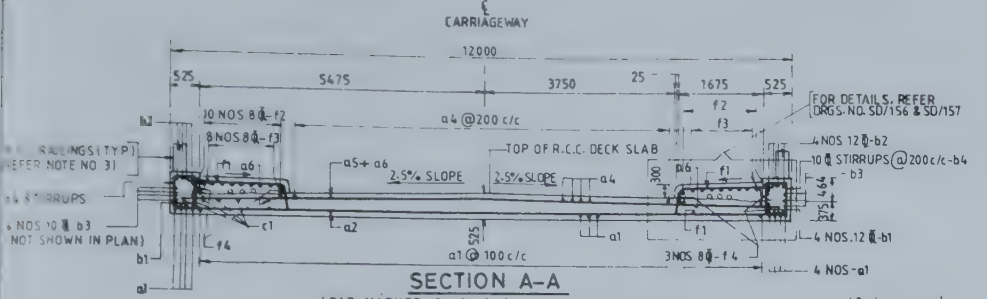
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 10.0m

(WITHOUT FOOTPATHS)

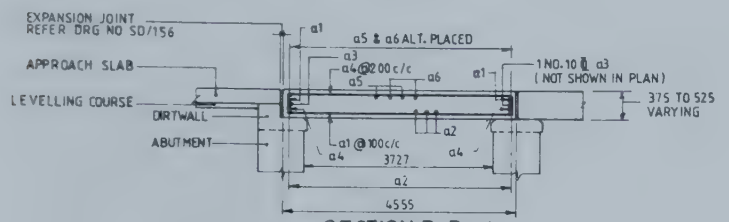
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SHARMA) S.E.	(M.K.MUKHERJEE) C.E.	DRG. NO. SD/164

DRG. NO. SD/165

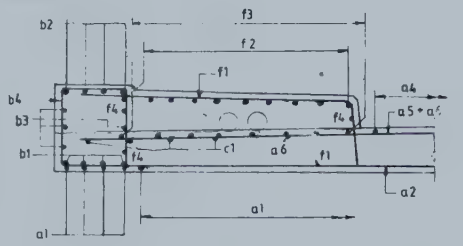


SECTION A-A

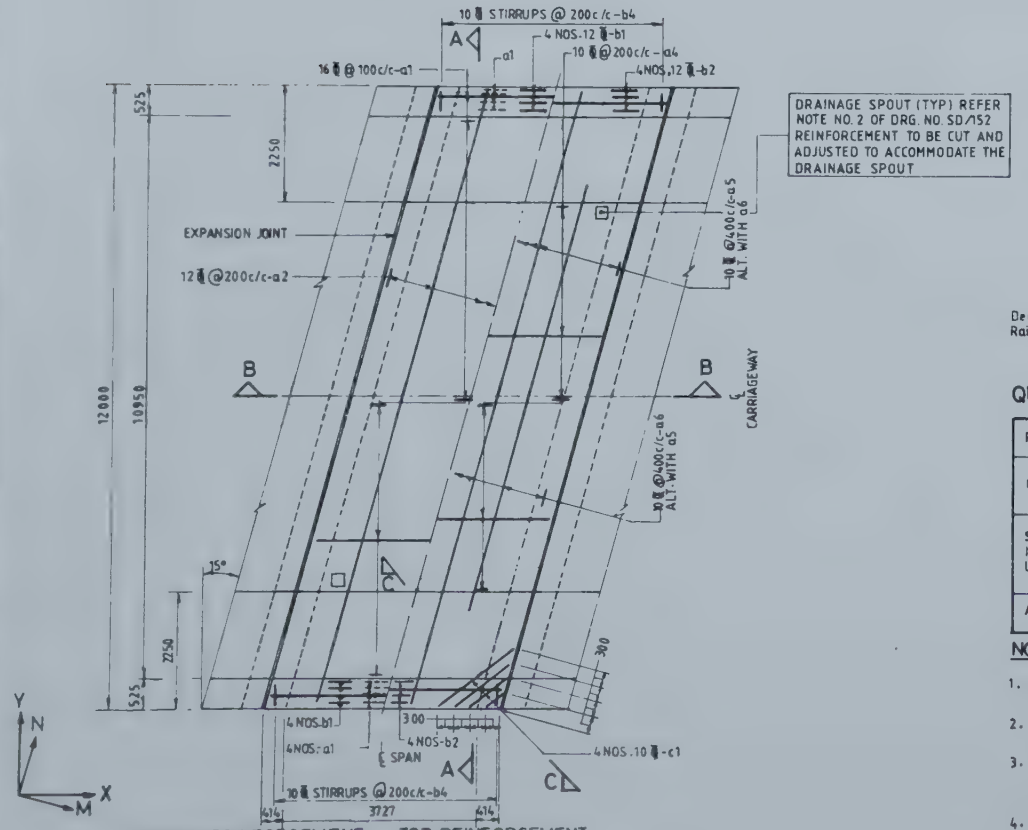
(BAR MARKED f1, f2 & f3 NOT SHOWN IN PLAN)



SECTION B-B ✱



SECTION C-C



DRAINAGE SPOUT (TYP) REFER NOTE NO. 2 OF DRG. NO. SD/152 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT

BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB ✱

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-X	a1	250 R=64 250 / 4455	16	100	4859	118	573.36	917
2	SLAB-BOTTOM ALONG-N	a2	200 R=48 200 / 12320	12	200	12648	23	290.90	262
3	SLAB-SIDE ALONG-N	a3	12320	10	—	12320	2	24.64	15
4	SLAB-TOP ALONG-X	a4	4455 / 250 R=40 250	10	200	48.95	38	186.01	112
5	SLAB-TOP ALONG-N	a5	145 6005 6005	10	400	12010	12	144.12	86
6	SLAB-TOP ALONG-N	a6	101 4193 4193	10	400	8386	11	92.25	55
7	KERB-BOTTOM	b1	350 R=48 350 / 4423	12	—	5051	8	40.41	36
8	KERB-TOP	b2	4455 / 350 R=48 350	12	—	5083	8	40.66	37
9	KERB-SIDES	b3	4423	10	—	4423	8	35.38	21
10	KERB-STIRRUPS	b4	405 / 689	10	200	2388	46	109.85	66
11	FOOTPATH-TOP ALONG-Y	f1	2050 / 623 R=32 / 300	8	200	2925	46	134.55	54
12	FOOTPATH-TOP ALONG-X	f2	4455 / 250 R=32 250	8	—	4907	20	98.14	39
13	FOOTPATH-MIDDLE ALONG-X	f3	4423	10	—	4423	16	70.77	42
14	FOOTPATH EDGES ALONG-X	f4	4423	8	—	4423	6	26.54	11
15	SLAB-TOP (OBTUSE ANGLE CORNER)	c1	VARIES 376 TO 1804	10	300	—	8	8.72	5

✱ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS — REFER DRAWING NO SD/156

Dead load of the superstructure per span including R.C.C. Railings @ 3kN/m. & wearing coat @ 2kN/sq m = 851 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	4.0
CONCRETE (cu.m.)	31.47
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	1846
ASPHALTIC WEARING COAT (sq.m.)	34.15

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drawing no SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS : 2502.
5. ✱ Reinforcement of adjacent span superstructure, approach slab not shown.
6. ✱ Service ducts & reinforcement of footpath not shown in plan.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156 SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

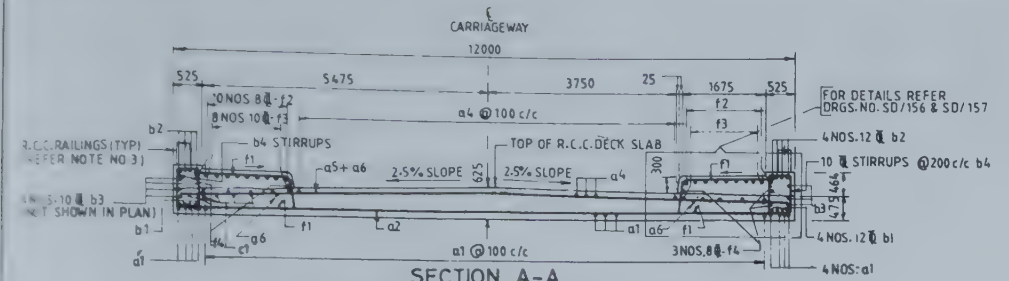
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 4.0m

(WITH FOOTPATHS)

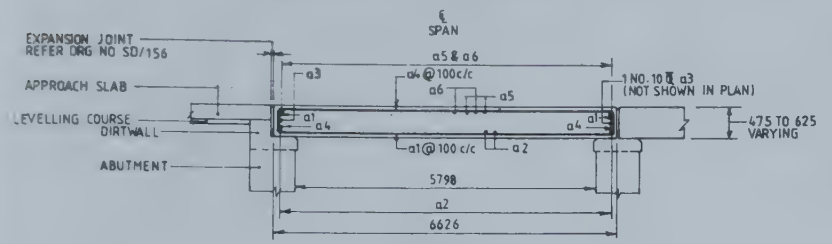
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R.H. SHARMA) S.E.	(M.K MUKHERJEE) C.E.	DRG NO SD/165

DRG. NO. SD/166

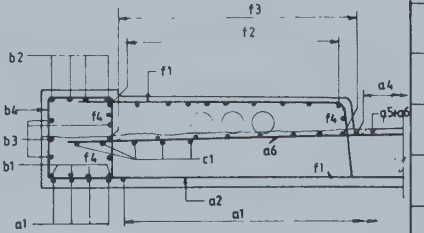


SECTION A-A

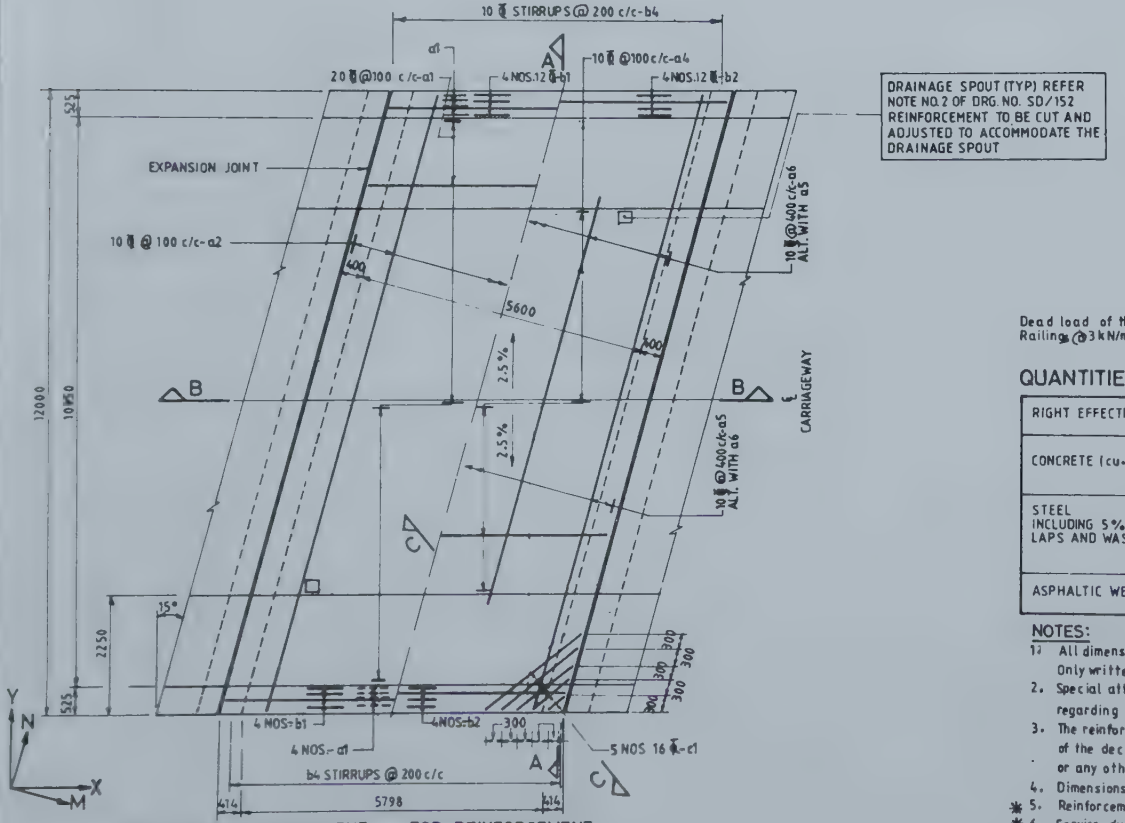
(BAR MARKED f1, f2 & f3 NOT SHOWN IN PLAN)



SECTION B-B *



SECTION. C-C



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL NO	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB BOTTOM ALONG - X	a1	325 R=80 6526 325	20	100	7056	118	832.61	2082
2	SLAB BOTTOM ALONG - N	a2	250 R=40 12320 250	10	100	12760	64	816.64	490
3	SLAB SIDE ALONG-N	a3	12320	10	—	12320	2	24.64	15
4	SLAB TOP ALONG - X	a4	325 6526 R=40 325	10	100	7116	76	540.82	324
5	SLAB TOP ALONG - N	a5	145 6005 6005	10	400	12010	17	204.17	123
6	SLAB TOP ALONG - N	a6	101 4193 4193	10	400	8386	16	134.18	81
7	KERB BOTTOM	b1	400 R=48 6486 400	12	—	7214	8	57.71	52
8	KERB TOP	b2	400 6526 R=48 400	12	—	7254	8	58.03	52
9	KERB SIDE	b3	6486	10	—	6486	8	51.89	31
10	KERB STIRRUPS	b4	405 785	10	200	2580	68	175.44	105
11	FOOT PATH - TOP ALONG - Y	f1	2050 719 R=32 300	8	200	3021	68	205.43	82
12	FOOTPATH TOP ALONG - X	f2	6526 300 R=32 300	8	—	7078	20	141.56	57
13	FOOTPATH MIDDLE ALONG - X	f3	6486	10	—	6486	16	103.78	62
14	FOOTPATH EDGES ALONG-X	f4	6486	8	—	6486	6	38.92	16
15	SLAB TOP (OBTUSE ANGLE CORNER)	c1	VARIES 376 TO 2280	16	300	—	10	13.28	21

* DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS, REFER DRG. NO. SD/156.

Dead load of the superstructure per span including R.C.C. Railings @ 3 kN/m & wearing coat @ 2 kN/sq.m = 1429 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	6.0
CONCRETE (cu.m)	53.73
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	3773
ASPHALTIC WEARING COAT (sq.m.)	49.7

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed
2. Special attention is invited to note (B) — 1 of drg.no.SD/151 regarding the design mix to be adopted.
3. The reinforcement of railing posts shall be incorporated before casting of the deck slab The railings shall conform to drg.no. SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502
5. * Reinforcement of adjacent span superstructure, approach slab not shown.
6. * Service ducts and reinforcement of footpath not shown in plan.

REFERENCE DRAWINGS

DRAWING. NO	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

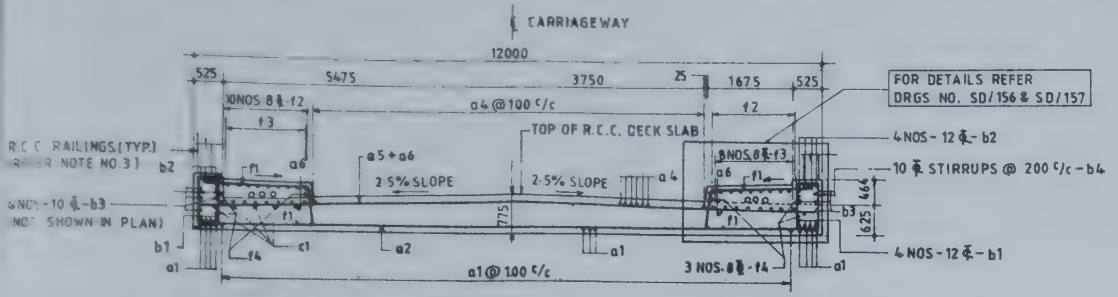
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 6.0 m

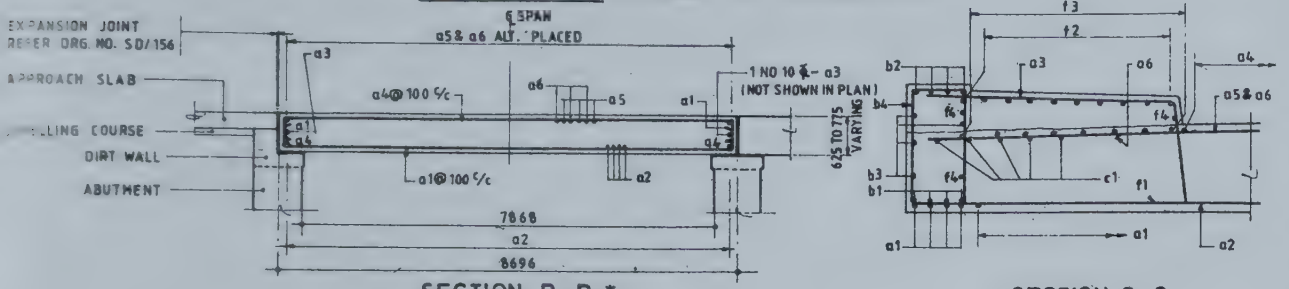
(WITH FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R.H. SARMA) S.E	(M.K. MUKHERJEE) C.E	DRG. NO. SD/166

DRG. NO. SD/167



SECTION A—A (BAR MARKED f1, f2 & f3 NOT SHOWN IN PLAN)



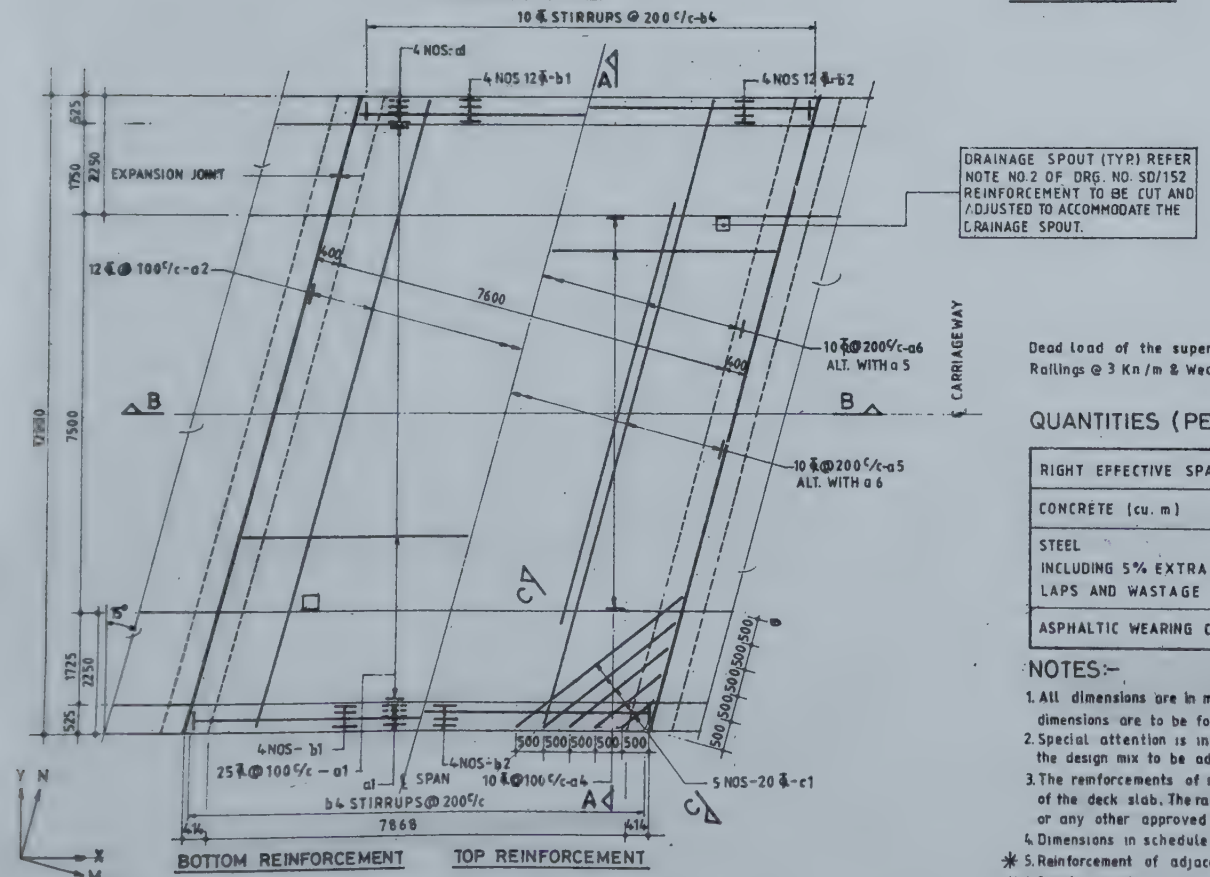
SECTION. B-B *

SECTION.C-C

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB BOTTOM ALONG - X	a1	400 R=100 400 / 8596	25	100	9246	118	1091.03	4146
2.	SLAB BOTTOM ALONG - N	a2	300 R=48 300 / 12320	12	100	12848	84	1079.23	971
3	SLAB SIDE ALONG-N	a3	12320	10	—	12320	2	24.64	15
4	SLAB TOP ALONG - X	a4	8596 / 400 R=40 400	10	100	9336	76	709.54	426
5	SLAB TOP ALONG-N	a5	225 6005 6005	10	200	12010	43	516.43	310
6	SLAB TOP ALONG - N	a6	225 4193 4193	10	200	8386	42	352.21	211.
7	KERB BOTTOM	b1	500 R=48 500 / 8546	12	—	9474	8	75.79	68
8	KERB TOP	b2	500 8556 R=48 500	12	—	9524	8	76.19	69
9	KERB SIDE	b3	8546	10	—	8546	8	68.37	41
10	KERB STIRRUPS	b4	500 405	10	200	2870	88 ✱	252.56	152
11	FOOTPATH TOP ALONG - Y	f1	870 2050 R=32 300	8	200	3172	88	279.14	112
12	FOOTPATH TOP ALONG - X	f2	400 8596 R=32 400	8	—	9348	20	186.96	75.
13	FOOTPATH MIDDLE ALONG - X	f3	8546	10	—	8546	16	136.74	82
14	FOOTPATH EDGES ALONG - X	f4	8546.	8	—	8546	6	51.28	21
15	SIDE TOP (OBTUSE ANGLE CORNER)	c1	VARIES 694 TO 3867	20	—	—	10	22.81	57

✱ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS—REFER DRAWING NO. SD/156.



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

Dead load of the superstructure per span including R.C.C Railings @ 3 Kn/m & Wearing coat @ 2 Kn/sq.m = 2251 Kn.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	8.0
CONCRETE (cu. m)	86.17
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE	7094
ASPHALTIC WEARING COAT (sq. m)	65.22

NOTES:-

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drawing no. SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.
5. ✱ Reinforcement of adjacent span superstructure, approach slab not shown
6. ✱ Service ducts and reinforcement of footpath not shown in plan

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

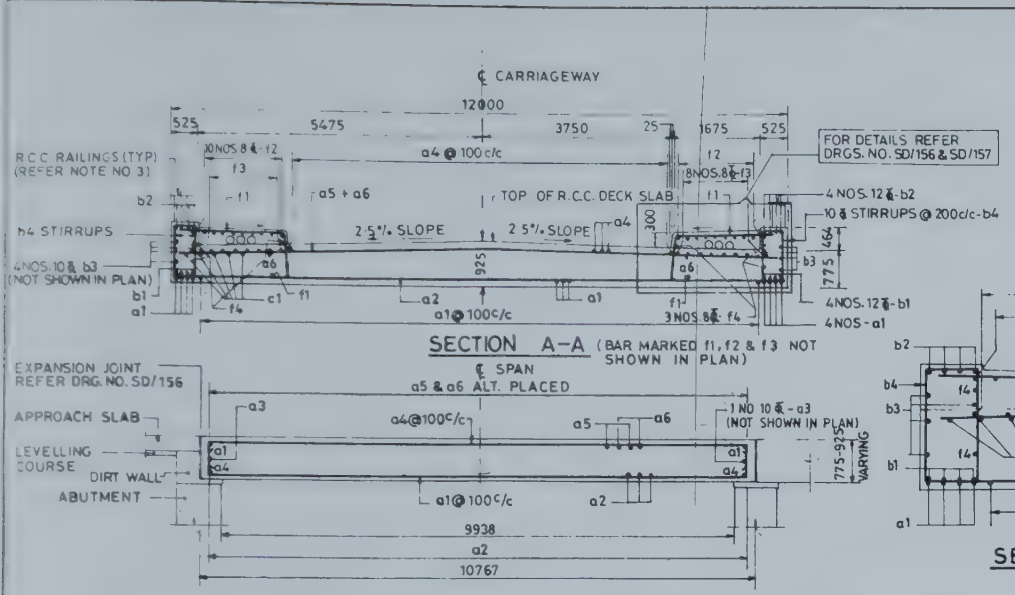
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 8.0 m

(WITH FOOTPATHS)

DESIGNED BY	APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E	DRG. NO. SD/167.

DRG. NO. SD/168



SCHEDULE OF REINFORCEMENT (PER SPAN)

SL NO	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB BOTTOM ALONG - X	a1	500 R=100 500 / 10666	25	100	11516	118	1358.89	5164
2	SLAB BOTTOM ALONG - N	a2	300 R=48 300 / 12320	12	100	12848	104	1336.19	1203
3	SLAB SIDE ALONG - N	a3	12320	10	–	12320	2	24.64	15
4	SLAB TOP ALONG - X	a4	10666 / 500 R=40 500	10	100	11606	76	882.06	529
5	SLAB TOP ALONG - N	a5	145 600S 600S	10	200	12010	52	624.52	375
6	SLAB TOP ALONG - N	a6	101 4193 4193	10	200	8386	52	436.07	262
7	KERB BOTTOM	b1	650 R=48 650 / 10616	12	–	11844	8	94.75	85
8	KERB TOP	b2	10666 / 850 R=48 850	12	–	11894	8	95.15	86
9	KERB SIDE	b3	10616	10		10616	8	84.93	51
10	KERB STIRRUPS	b4	405 / 150 150	10	200	3170	108 *	342.36	205
11	FOOTPATH-TOP ALONG - Y	f1	2050 / 200 R=32	8	200	3299	108	356.29	143
12	FOOTPATH TOP ALONG - X	f2	10666 / 600 R=32 600	8	–	11818	20	236.36	95
13	FOOTPATH MIDDLE ALONG - X	f3	10616	8	–	10616	16	169.86	68
14	FOOTPATH EDGES ALONG - X	f4	10616	8	–	10616	6	63.70	25
15	SLAB TOP (OBTUSE ANGLE CORNER)	c1	VARIES 694 TO 3868	20	–	–	10	22.80	57

* DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS — REFER DRAWING NO. SD/156

Dead load of the superstructure per span including R.C.C Railings @ 3 kN/m & wearing coat @ 2 kN/sq.m = 3252 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	10.0
CONCRETE (cu. m)	126.07
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (KG.)	8781
ASPHALTIC WEARING COAT (sq. m)	80.75

NOTES

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note(B)-1 of drawing no. SD/151 regarding the design mix to be adopted
3. The reinforcements of railing posts shall be incorporated before casting of the deck-slab. The railings shall conform to drawing no. SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS:2502
5. * Reinforcement of adjacent span superstructure, approach slab not shown.
6. * Service ducts & reinforcement of footpath not shown in plan

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/152	GENERAL ARRANGEMENT FOR 15° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

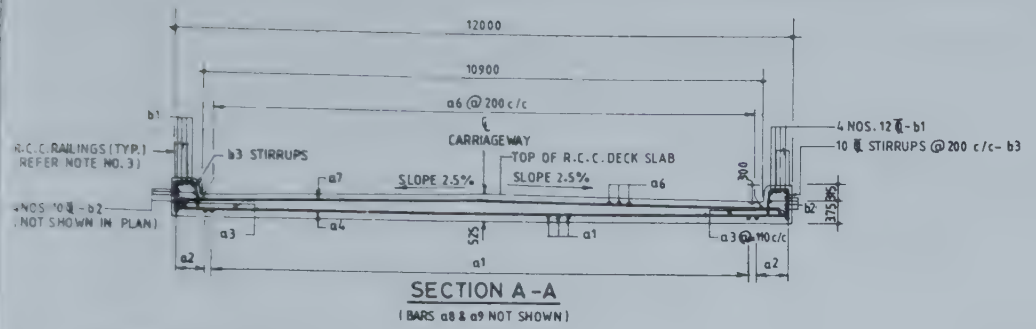
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (15° SKEW) RIGHT EFFECTIVE SPAN 10.0m

(WITH FOOTPATHS)

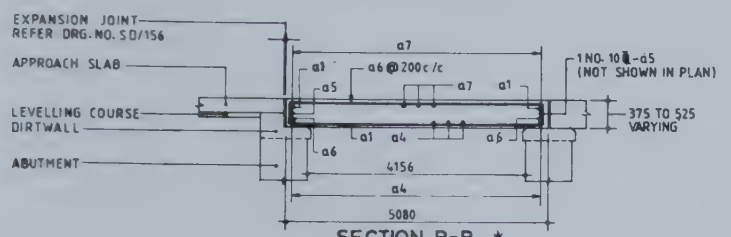
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SHARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/168

DRG.NO. SD/169

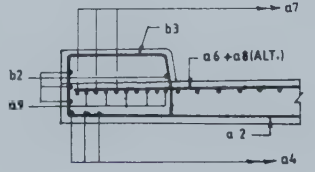


SECTION A-A

(BARS a8 & a9 NOT SHOWN)



SECTION B-B *



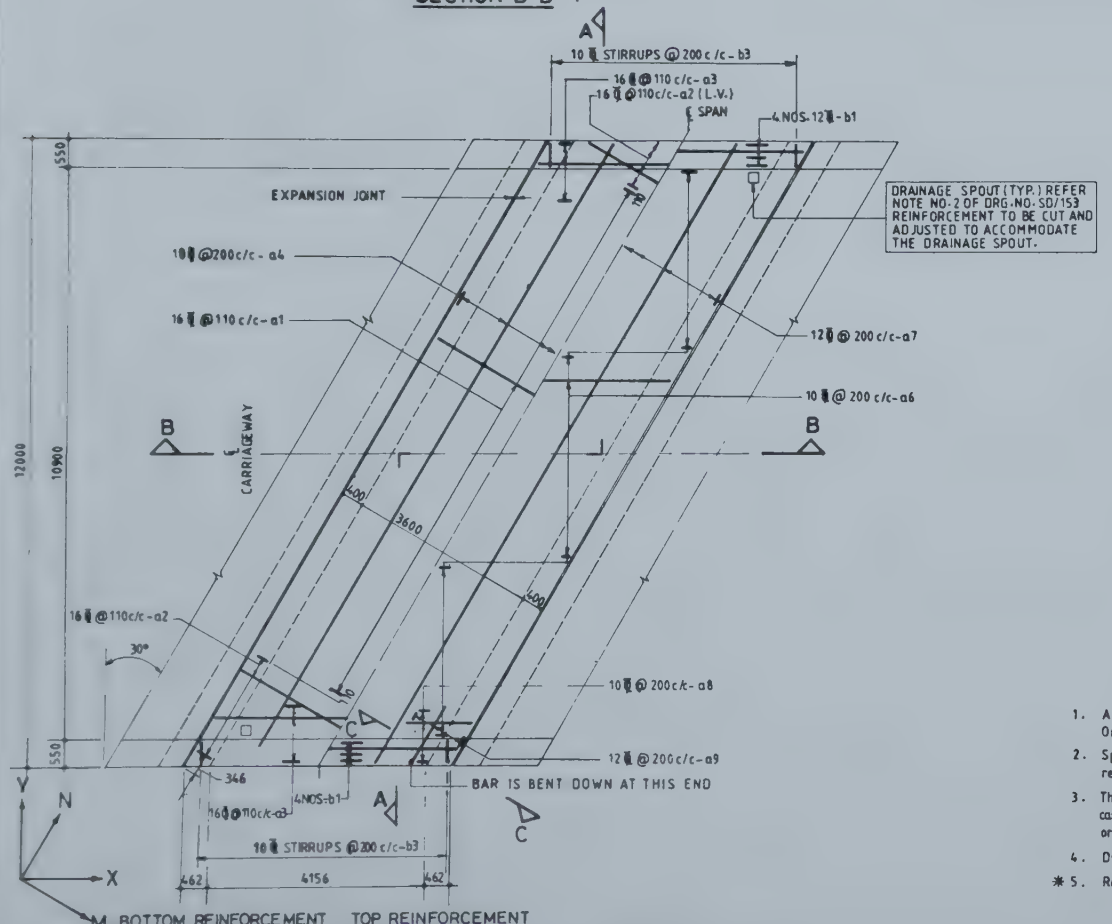
SECTION C-C

(BARS a3, a5 & b1 NOT SHOWN)

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO.	LOCATION	BAR MKD.	SPACE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	250 R=64 4300 250	16	110	4704	104	489.22	783
2	SLAB-BOTTOM ALONG-M	a2	250 R=64 250 VARIES 500 TO 4120	16	110	2714	40	108.56	174
3	SLAB-BOTTOM ALONG-X	a3	250 R=64 4980 250	16	110	5384	20	107.68	172
4	SLAB-BOTTOM ALONG-N	a4	200 R=40 13756 200	10	200	14096	23	324.21	195
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27.51	17
6	SLAB-TOP ALONG X	a6	4980 250 R=40 250	10	200	5420	56	303.52	182
7	SLAB-TOP ALONG-N	a7	145 6700 6700	12	200	13400	23	308.20	277
8	TOP MESH ALONG -X	a8	1772	10	200	1772	12	21.26	13
9	TOP MESH ALONG - N	a9	1772 237 R=48 44 435	12	200	2372	10	23.72	21
10	KERB-TOP	b1	4980 350 R=48 350	12	—	5608	8	44.86	40
11	KERB-SIDES	b2	4948	10	—	4948	8	39.58	24
12	KERB-STIRRUPS	b3	249 405 554 430	10	200	2144	52 *	111.49	67

* DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS - REFER DRG. NO. SD/156



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

Dead load of the superstructure per span including R.C.C. railings @ 3kN/m & wearing coat @ 2kN/sq.m. = 840 kn

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	4.0
CONCRETE (cu.m.)	29.12
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	2063
ASPHALTIC WEARING COAT (sq.m.)	55.37

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcement of railing post shall be incorporated before casting of the deck slab. The railing shall conform to drawing no SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502

* 5. Reinforcement of adjacent span superstructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

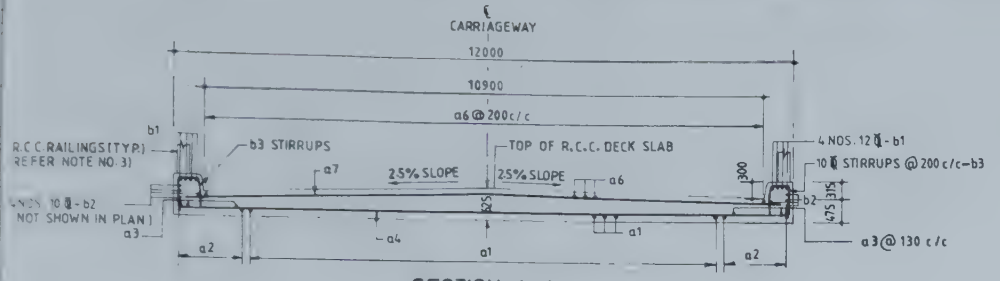
GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 4.0m

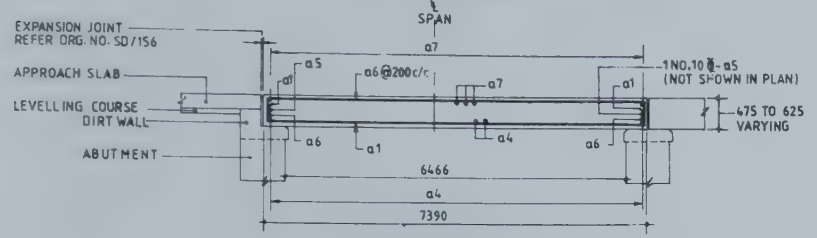
(WITHOUT FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) EE	(R.H SARMA) S.E	(M.K.MUKHERJEE) C E	DRG. NO. SD/169

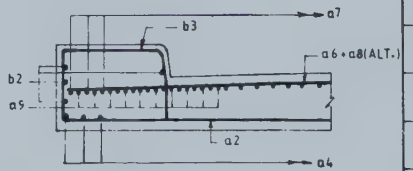


SECTION A-A

(BARS a8 & a9 NOT SHOWN)



SECTION B-B *



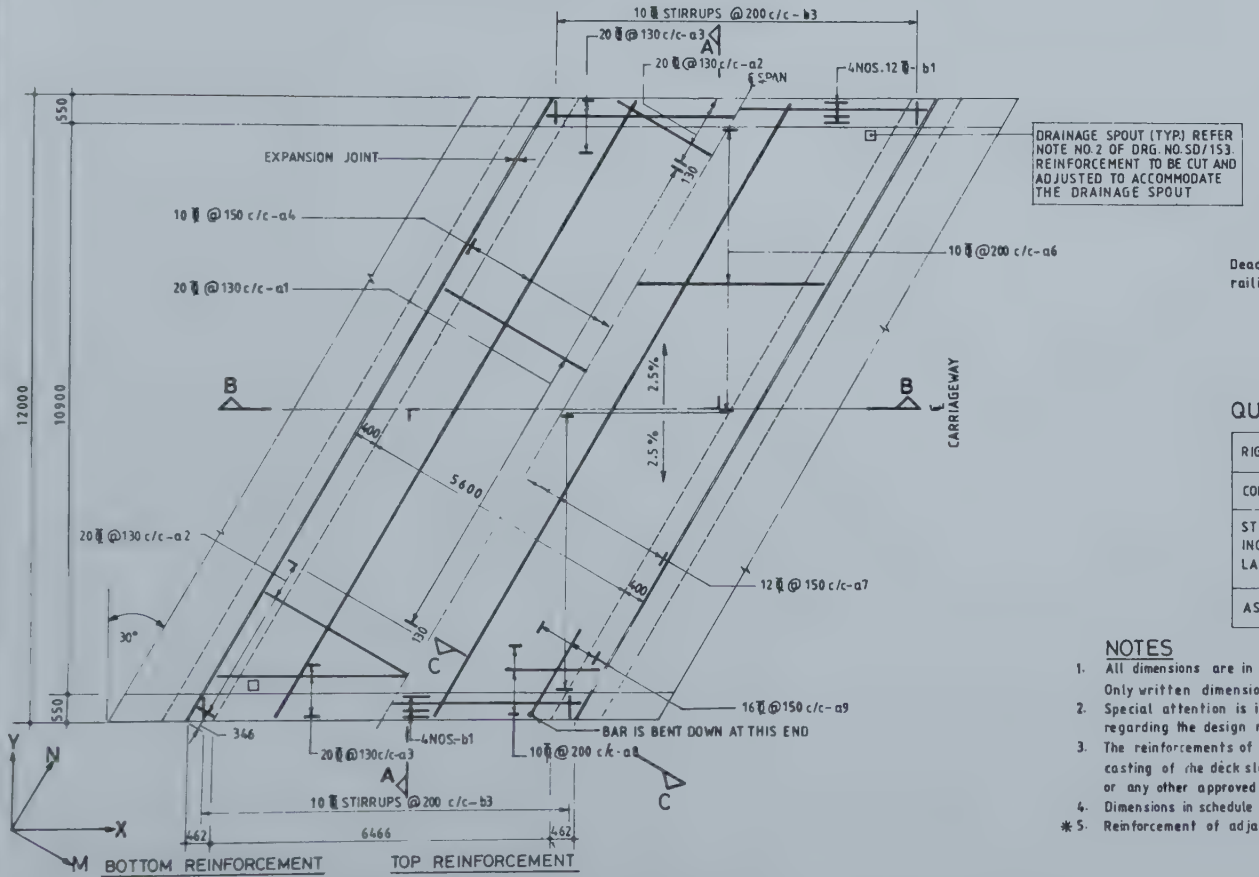
SECTION C-C

(BARS a3, a5 & b1 NOT SHOWN)

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL NO	LOCATION	BAR MKD	SPACE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	325 R=80 325 / 6300	20	130	6830	79	539.57	1349
2	SLAB-BOTTOM ALONG-M	a2	325 R=80 325 / VARIES 500 TO 6129	20	130	3845	52	199.91	500
3	SLAB-BOTTOM ALONG-X	a3	325 R=80 325 / 7290	20	130	7820	18	140.76	352
4	SLAB-BOTTOM ALONG-N	a4	250 R=40 250 / 13756	10	150	14196	43	610.43	366
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27.51	17
6	SLAB-TOP ALONG-X	a6	325 7290 R=40 325	10	200	7880	56	441.28	265
7	SLAB-TOP ALONG-N	a7	345 6700 6700	12	150	13400	43	576.20	519
8	TOP MESH ALONG-X	a8	2502	10	200	2502	18	45.04	27
9	TOP MESH ALONG-N	a9	331 2502 R=64 63 565	16	150	3302	20	66.04	106
10	KERB-TOP	b1	400 7290 R=48 400	12	—	8018	8	64.14	58
11	KERB-SIDES	b2	7250	10	—	7250	8	58.00	35
12	KERB-STIRRUPS	b3	345 405 650 430	10	200	2336	76 (*)	177.54	107

(*) DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS - REFER DRG. NO. SD/156



PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

Dead load of the superstructure per span including R.C.C. railings @ 3kN/m & wearing coat @ 2kN/sq.m. = 1435 kn

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	6.0
CONCRETE (cu.m.)	51.22
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	3886
ASPHALTIC WEARING COAT (sq.m)	80.55

NOTES

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railing shall conform to drawing no SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS:2502.
5. * Reinforcement of adjacent span, superstructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

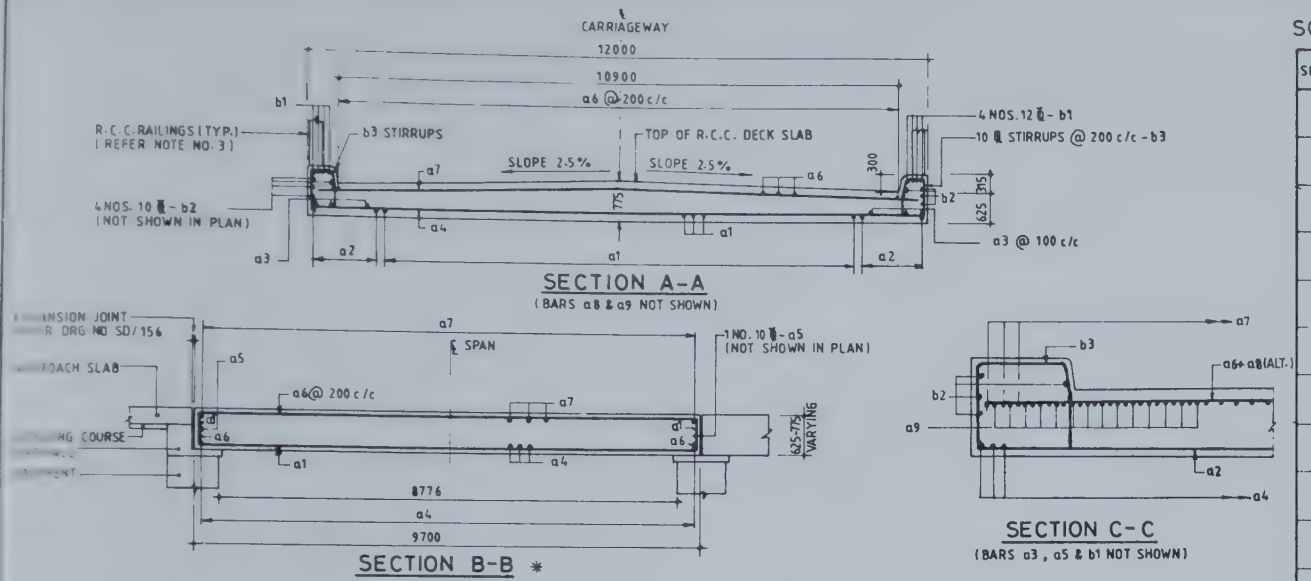
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 6.0m

(WITHOUT FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/170

DRG. NO. SD/171



SECTION A-A

(BARS a8 & a9 NOT SHOWN)

SECTION B-B *

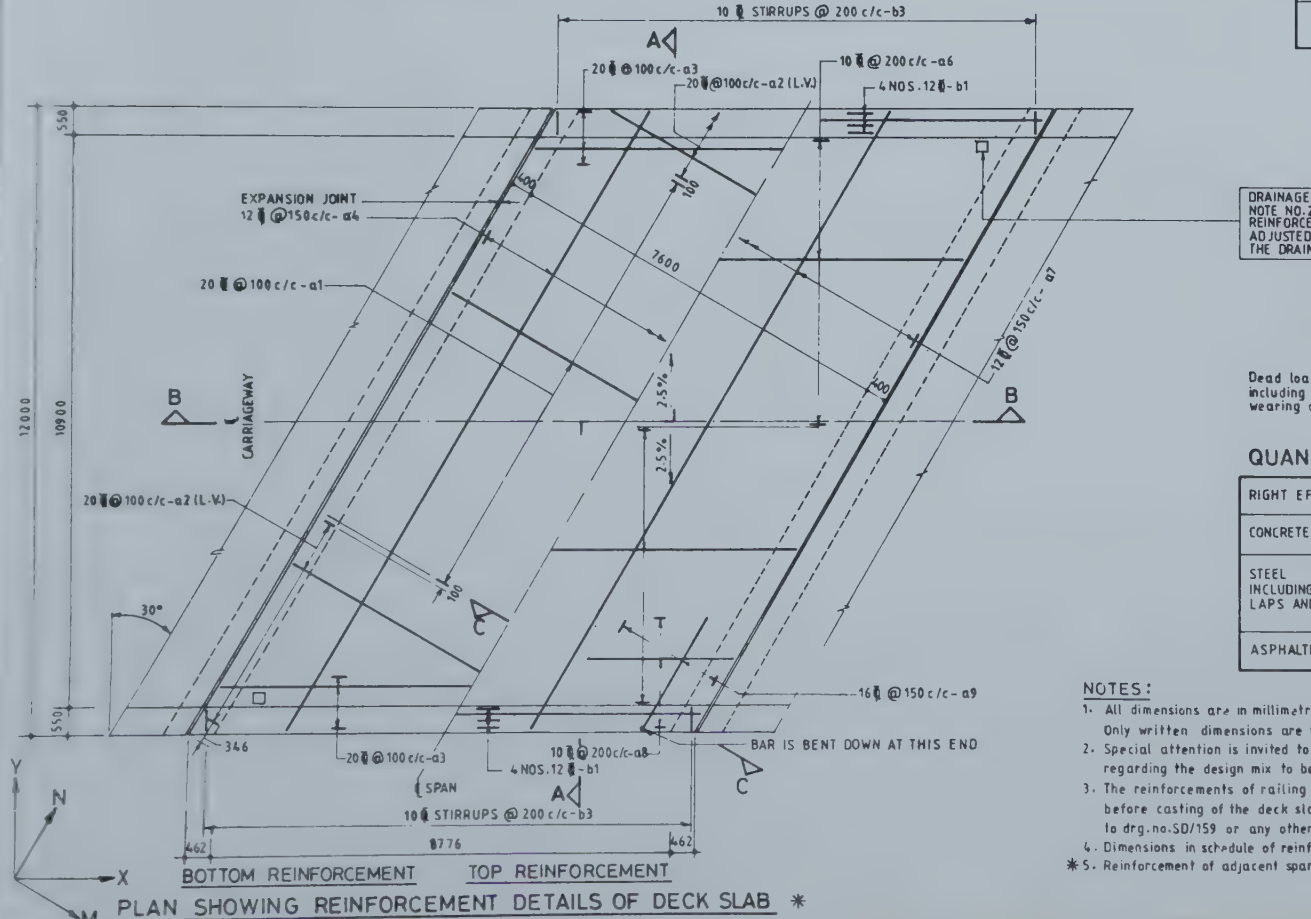
SECTION C-C

(BARS a3, a5 & b1 NOT SHOWN)

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	400 R=80 400 / 8300	20	100	8980	91	817.20	2043
2	SLAB-BOTTOM ALONG-M	a2	400 R=80 400 / VARIES 500 TO 8137	20	100	4999	90	449.87	1125
3	SLAB-BOTTOM ALONG-X	a3	400 R=80 400 / 9600	20	100	10280	22	226.16	566
4	SLAB-BOTTOM ALONG-N	a4	300 R=48 300 / 13756	12	150	14284	57	814.18	733
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27.52	17
6	SLAB-TOP ALONG-X	a6	9600 / 400 R=40 400	10	200	10340	56	579.04	347
7	SLAB-TOP ALONG-N	a7	125 6700 6700	12	150	13400	57	763.80	687
8	TOP MESH ALONG-X	a8	2767	10	200	2767	22	60.87	37
9	TOP MESH ALONG-N	a9	125 2767 R=64 415	16	150	3567	28	99.88	160
10	KERB-TOP	b1	500 9600 R=48 100	12	—	10528	8	84.23	76
11	KERB-SIDES	b2	9560	10	—	9560	8	76.48	46
12	KERB-STIRRUPS	b3	400 490 430 R=40	10	200	2626	98 ⊛	257.35	155

⊛ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS – REFER DRG. NO. SD/156.



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

DRAINAGE SPOUT (TYP.) REFER NOTE NO. 2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT.

Dead load of the superstructure per span including R.C.C. Railings @ 3 kN/m & wearing coat @ 2 kN/sq. m = 2302 kN.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	8.0
CONCRETE (cu.m.)	84.69
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	6292
ASPHALTIC WEARING COAT (sq.m)	105.73

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drg. no. SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drg. no. SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C RAILINGS (WITHOUT FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

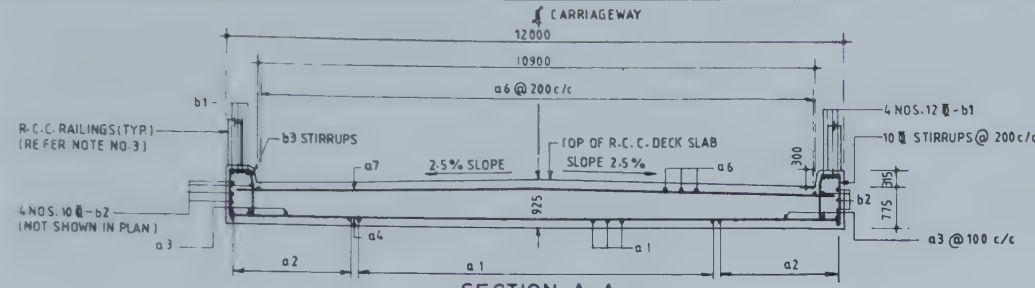
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 8.0m

(WITHOUT FOOTPATHS)

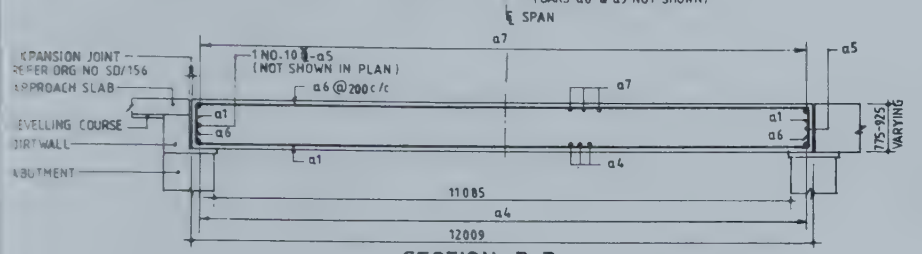
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E	DRG. NO. SD/171

DRG. NO. SD/172

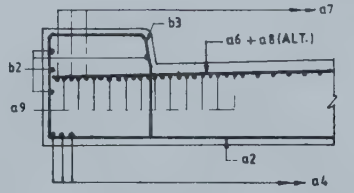


SECTION A-A

(BARS a8 & a9 NOT SHOWN)



SECTION B-B *



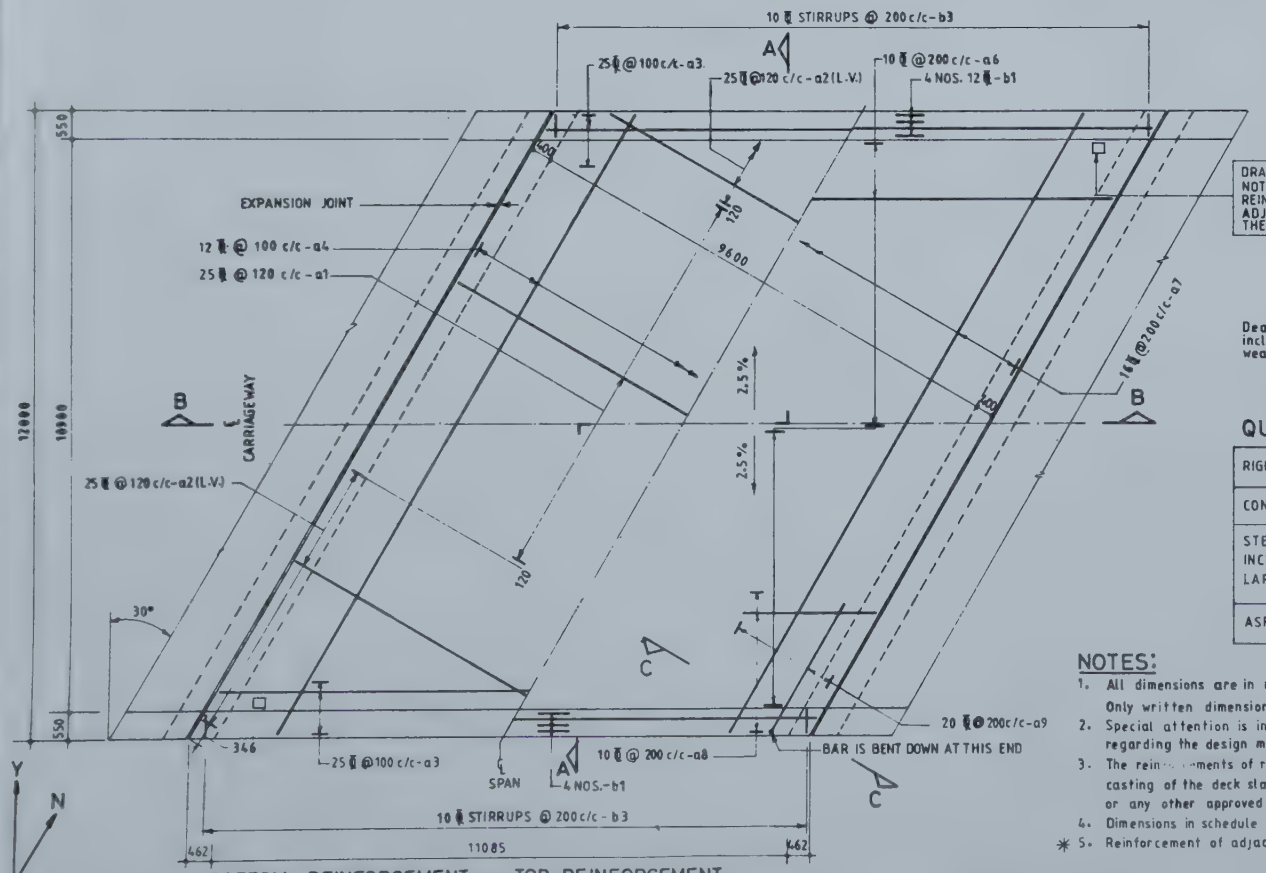
SECTION C-C

(BARS a3, a5 & b1 NOT SHOWN)

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	500 R=100 500 / 10300	25	120	11150	66	735.90	2796
2	SLAB-BOTTOM ALONG-M	a2	500 R=100 500 / VARIES 500 TO 10137	25	120	6169	94	579.84	2203
3	SLAB-BOTTOM ALONG-X	a3	500 R=100 500 / 11909	25	100	12759	22	280.70	1067
4	SLAB-BOTTOM ALONG-N	a4	300 R=48 300 / 13756	12	100	14284	104	1485.54	1337
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27.51	17
6	SLAB-TOP ALONG-X	a6	11909 / 500 R=40 500	10	200	12849	56	719.54	432
7	SLAB-TOP ALONG-N	a7	145 6700 6700	16	200	13400	53	710.20	1136
8	TOP MESH ALONG-X	a8	3242	10	200	3242	30	97.26	58
9	TOP MESH ALONG-N	a9	628 3242 R=80 492 81	20	200	4242	24	101.81	255
10	KERB-TOP	b1	500 11909 R=48 500	12	—	12837	8	102.70	92
11	KERB-SIDES	b2	11859	10		11859	8	94.87	57
12	KERB-STIRRUPS	b3	405 S 430 R=40	10	200	2926	122 ⊛	357.00	214

⊛ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS REFER DRG. NO. SD/156.


10 ϕ STIRRUPS @ 200 c/c - b3
25 ϕ @ 100 c/c - a3
25 ϕ @ 120 c/c - a2 (L.V.)
10 ϕ @ 200 c/c - a6
4 NOS. 12 ϕ - b1
EXPANSION JOINT
12 ϕ @ 100 c/c - a4
25 ϕ @ 120 c/c - a1
16 ϕ @ 200 c/c - a7
9600
2.5%
CARRIAGEWAY
25 ϕ @ 120 c/c - a2 (L.V.)
30°
20 ϕ @ 200 c/c - a9
10 ϕ @ 200 c/c - a8
4 NOS. - b1
BAR IS BENT DOWN AT THIS END
SPAN
346
462
11085
550
12000
10900

BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

DRAINAGE SPOUT (TYP.) REFER NOTE NO. 2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT.

Dead load of the superstructure per span including R.C.C. Railings @ 3 kN/m & wearing coat @ 2 kN/sq m = 3369 kN

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	10.0
CONCRETE (cu.m.)	126.47
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (kg)	10147
ASPHALTIC WEARING COAT (sq.m)	130.90

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156 SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/159	DETAILS OF R.C.C. RAILINGS (WITHOUT FOOTPATHS)

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no SD/151 regarding the design mix to be adopted.
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drawing no SD/159 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS:2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown.

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

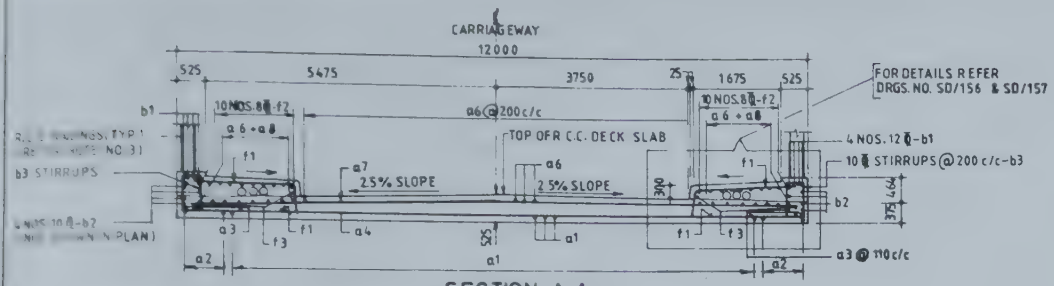
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 10.0m

(WITHOUT FOOTPATHS)

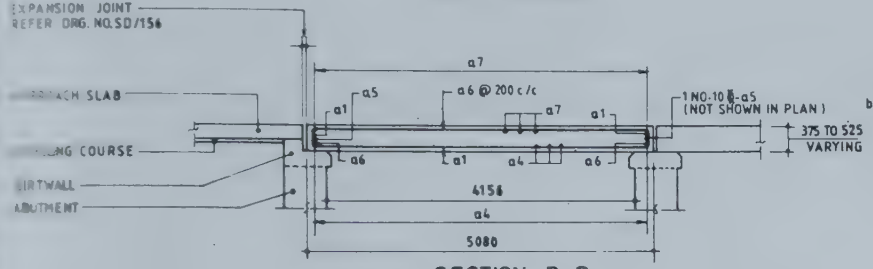
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) EE	(R.H.SARMA) SE	(M.K.MUKHERJEE) CE	DRG NO. SD/172

DRG. NO. SD/173

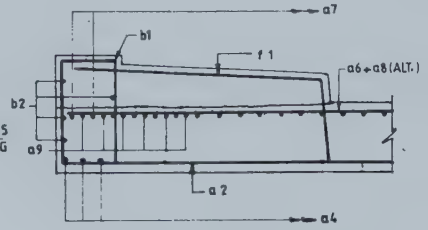


SECTION A-A

(BARS a8 & a9 NOT SHOWN)

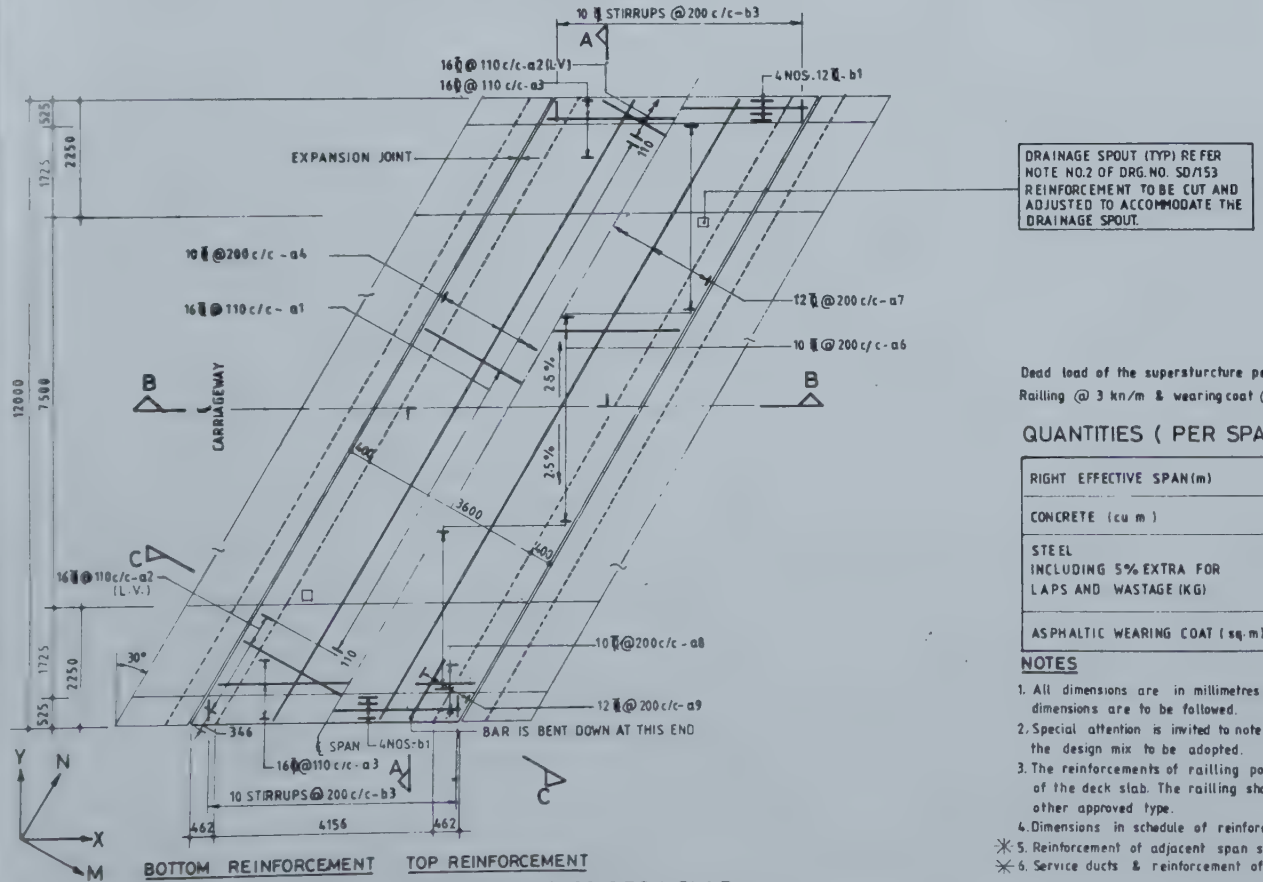


SECTION B-B *



SECTION C-C

(BARS a3, a5, b3, f2 & f3 NOT SHOWN)



DRAINAGE SPOUT (TYP) REFER NOTE NO.2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT.

BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL. NO.	LOCATION	BAR MKD.	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH (m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	250 R=64 250 / 4300	16	110	4704	104	489.22	783
2	SLAB-BOTTOM ALONG-M	a2	250 R=64 250 / VARIES 500 TO 4120	16	110	2714	40	108.56	174
3	SLAB-BOTTOM ALONG-X	a3	250 R=64 250 / 4980	16	110	5384	20	107.68	172
4	SLAB-BOTTOM ALONG-N	a4	200 R=40 200 / 13756	10	200	14096	23	324.21	195
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27.51	17
6	SLAB-TOP ALONG-X	a6	4980 / 250 R=40 250	10	200	5420	56	303.52	182
7	SLAB-TOP ALONG-N	a7	345 6700 6700	12	200	13400	23	308.20	277
8	TOP MESH ALONG-X	a8	1772	10	200	1772	12	21.26	13
9	TOP MESH ALONG-N	a9	1772 / 237 R=48 44 / 535	12	200	2372	10	23.72	21
10	KERB-TOP	b1	4980 / 350 R=48 350	12	—	5608	8	44.86	40
11	KERB-SIDES	b2	4948	10	—	4948	8	39.58	24
12	KERB-STIRRUPS	b3	405 / 689	10	200	2388	52 (*)	124.18	75
13	FOOTPATH-TOP ALONG-N	f1	53 2050 51 / 623 R=32 / 300	8	200	2925	52	152.10	61
14	FOOTPATH-TOP ALONG-X	f2	250 4980 250 / R=32	8	—	5432	20	108.64	43
15	FOOTPATH-MIDDLE ALONG-X	f3	4948	8	—	4948	6	29.69	12

(*) DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS - REFER DRG. NO. SD/156.

Dead load of the superstructure per span including R.C.C. Railing @ 3 kn/m & wearing coat @ 2kn/sqm = 349 kn

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	4.0
CONCRETE (cu m)	35.10
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (KG)	2193
ASPHALTIC WEARING COAT (sq.m)	38.10

NOTES

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcements of railling posts shall be incorporated before casting of the deck slab. The railling shall conform to drawing no. SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown
6. * Service ducts & reinforcement of footpath not shown in plan

REFERENCE DRAWINGS

DRAWING NO	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

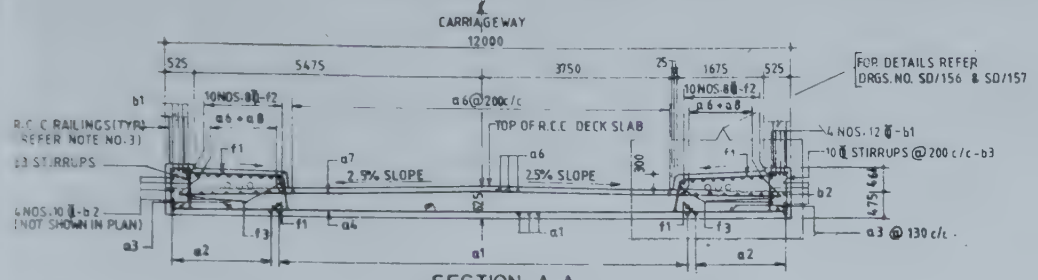
STANDARD DRAWINGS FOR ROAD BRIDGES

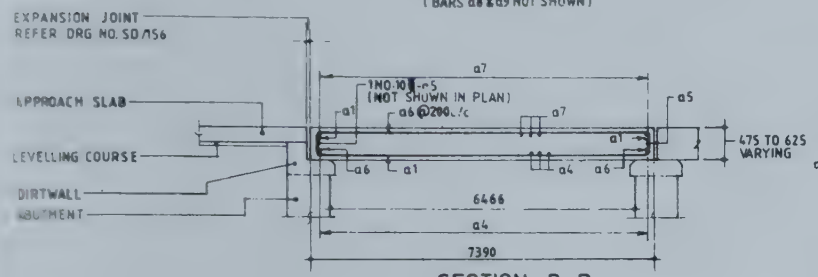
R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 4.0m

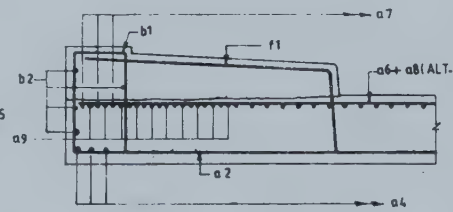
(WITH FOOTPATHS)

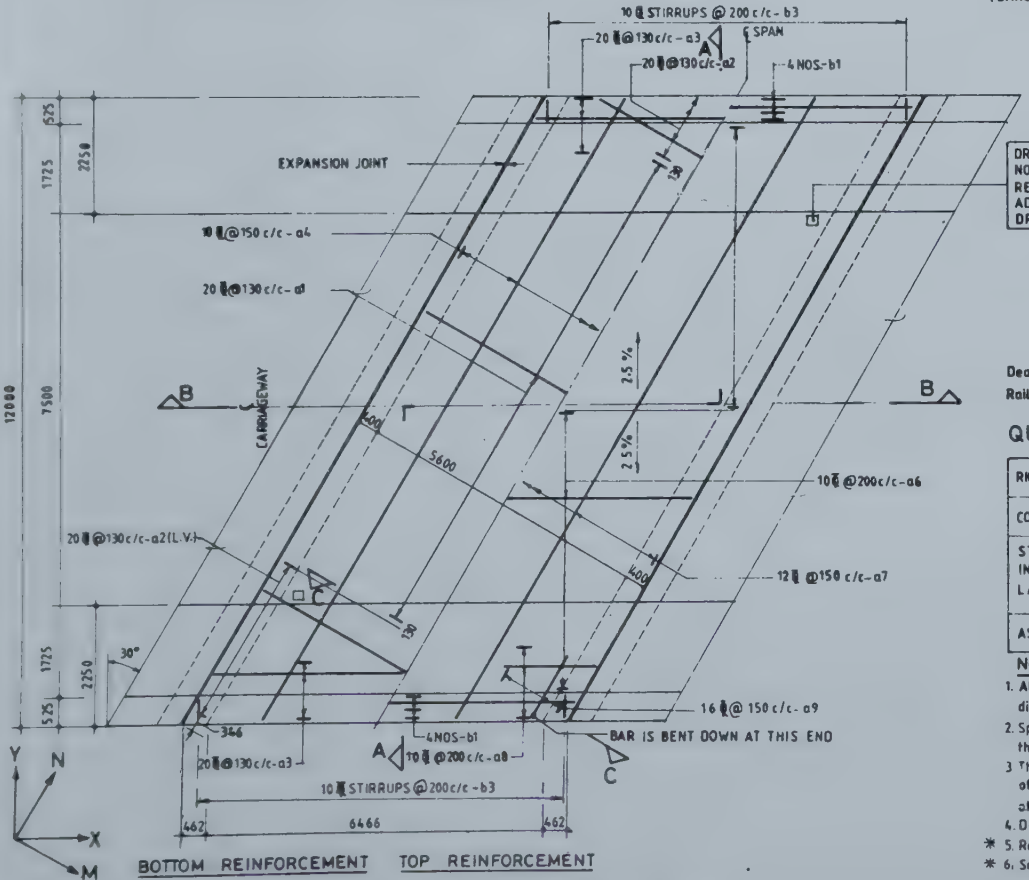
RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E.E.	(R. H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/173

DRG. NO. SD/174









DRAINAGE SPOUT (TYP) REFER NOTE NO. 2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT.

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO	LOCATION	BARMKO.	SHAPE	DIA. (mm)	SPACING (mm)	LENGTH (mm)	NOS.	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB-BOTTOM ALONG-M	a1	325 R=80 325 / 6300	20	130	6830	79	539.57	1349
2	SLAB-BOTTOM ALONG-M	a2	325 R=80 325 / VARIES 500 TO 6129	20	130	3845	52	199.91	500
3	SLAB-BOTTOM ALONG-X	a3	325 R=80 325 / 7290	20	130	7820	18	140.76	352
4	SLAB-BOTTOM ALONG-N	a4	250 R=40 250 / 13756	10	150	14196	43	610.43	366
5	SLAB-SIDES ALONG-N	a5	13756	10	—	13756	2	27 51	17
6	SLAB-TOP ALONG-X	a6	7290 / 325 R=40 325	10	200	7880	56	441.28	265
7	SLAB-TOP ALONG-N	a7	345 6700 6700	12	150	13400	43	576.20	519
8	TOP MESH ALONG-X	a8	2502	10	200	2502	18	45.04	27
9	TOP MESH ALONG-N	a9	2502 / 335 R=64 585	16	150	3302	20	66.04	106
10	KERB-TOP	b1	7290 / 400 R=48 400	12	—	8018	8	64.15	39
11	KERB-SIDES	b2	7250	10	—	7250	8	58.00	35
12	KERB-STIRRUPS	b3	405 / 785 405	10	200	2580	76*	196.08	118
13	FOOTPATH TOP ALONG-N	f1	64 H 2050 / 716 R=32 350	8	200	3021	76	229.60	92
14	FOOTPATH TOP ALONG-X	f2	7290 / 300 R=32 300	8	—	7842	20	156.84	63
15	FOOTPATH MIDDLE ALONG-X	f3	7250	8	—	7250	6	43 50	18

* DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS, REFER DRG. NO. SD/156.

Dead load of the superstructure per span including R.C.C. Railings @ 3 kn/m & wearing coat @ 2 kn/sq.m = 159% kn.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	6.0
CONCRETE (cu.m)	59.92
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (KG)	4059
ASPHALTIC WEARING COAT (sq.m)	55.43

NOTES

1. All dimensions are in millimetres unless otherwise mentioned only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no SD/151 regarding the design mix to be adopted
3. The reinforcements of railing posts shall be incorporated before casting of the deck slab. The railing shall conform to drawing no SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS:2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown.
6. * Service ducts & reinforcement of footpath not shown in plan.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

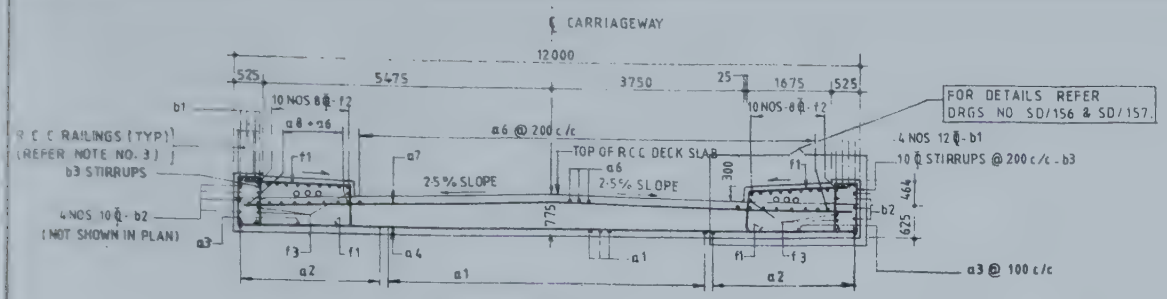
GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

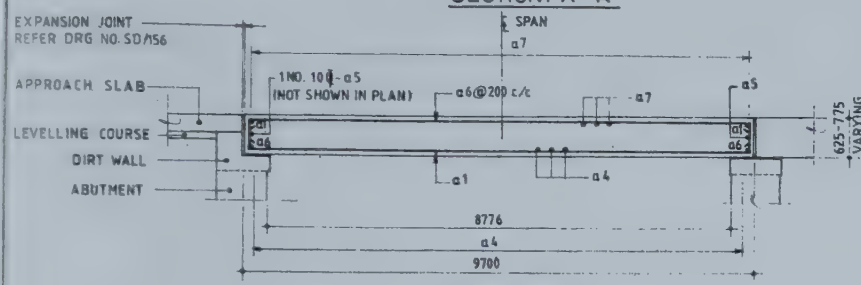
R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 6.0m

(WITH FOOTPATHS)

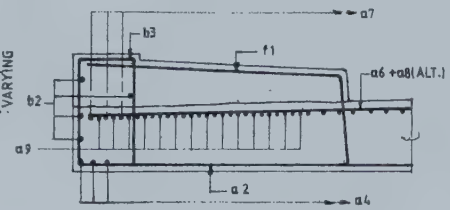
RECOMMENDED BY		APPROVED BY	1992
(A.S. OK KUMAR) I.E.	(R.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E.	DRG. NO. SD/174



SECTION. A-A



SECTION. B-B *



SECTION C-C

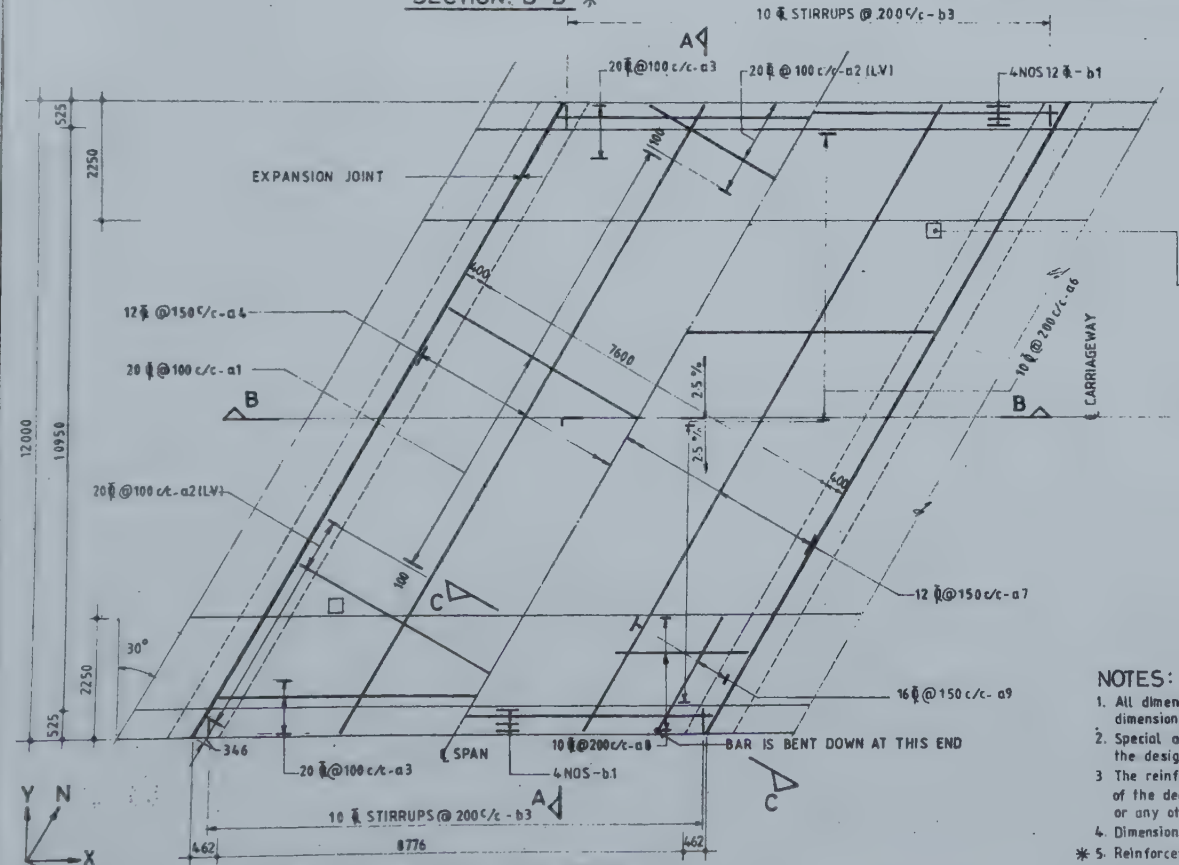
(BARS a3 a5 b1 f2 & f3 NOT SHOWN)

SCHEDULE OF REINFORCEMENT (PER SPAN)

DRG. NO. SD/175

SL NO	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH(m)	WEIGHT (kg)
1	SLAB BOTTOM ALONG - M	a1	400 R=80 400 / 8300	20	100	8980	91	817.20	2043
2	SLAB BOTTOM ALONG - M	a2	400 R=80 400 / VARIES 500 TO 8137	20	100	4999	90	449.87	1125
3	SLAB BOTTOM ALONG - X	a3	400 R=80 400 / 9600	20	100	10280	22	226.16	566
4	SLAB BOTTOM ALONG - N	a4	300 R=48 300 / 13756	12	150	14284	57	814.11	733
5	SLAB SIDES ALONG - N	a5	13756	10	—	13756 &	2	27.52	17
6	SLAB TOP ALONG - X	a6	9600 400 R=40 400	10	200	10340	56	579.04	347
7	SLAB TOP ALONG - N	a7	165+ 6700 6700	12	150	13400	57	763.80	687
8	TOP MESH ALONG - X	a8	2767	10	200	2767	22	60.87	37
9	TOP MESH ALONG - L	a9	70 2767 415 R=64	16	150	3567	28	99.88	160
10	KERB - TOP	b1	9600 500 R=48 500	12	—	10528	8	84.23	76
11	KERB - SIDES	b2	9560	10	—	9560	8	76.48	46
12	KERB - STIRRUPS	b3	405 930 R=40	10	200	2870	98 ⊛	281.26	169
13	FOOTPATH-TOP ALONG - Y	f1	77 2050 R=32 300 511	8	200	3172	98	310.86	124
14	FOOTPATH-TOP ALONG - X	f2	9600 400 R=32 400	8	—	10352	20	207.04	83
15	FOOTPATH MIDDLE ALONG - X	f3	9560	8	—	9560	6	57.36	23

⊛ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS, REFER DRG. NO. SD/156



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB *

DRAINAGE SPOUT (TYP.) REFER NOTE NO.2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT

Dead load of the superstructure per span including R.C.C. Railings @ 3 kN/m & wearing coat @ 2 kN/sq.m = 2511 kN.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	8.0
CONCRETE (cu.m)	96.12
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (KG)	6548
ASPHALTIC WEARING COAT (sq.m)	72.75

NOTES:

1. All dimensions are in millimetres unless otherwise mentioned. Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcement of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drawing no. SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS: 2502.
5. * Reinforcement of adjacent span superstructure, approach slab not shown.
6. * Service ducts & reinforcement of footpath not shown in plan.

REFERENCE DRAWINGS

DRAWING NO	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C. RAILINGS (WITH FOOTPATHS)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

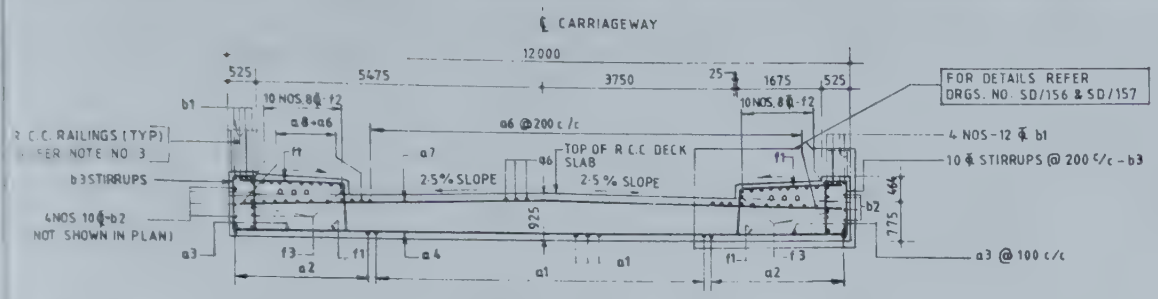
STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 8.0m.

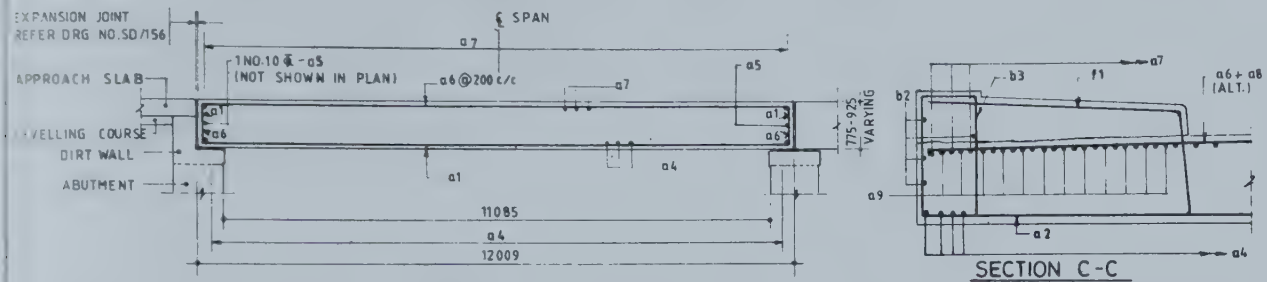
(WITH FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) E E	(R. H. SARMA) S.E	(M K MUKHERJEE) C E.	DRG NO SD/175

DRG. NO. SD/176



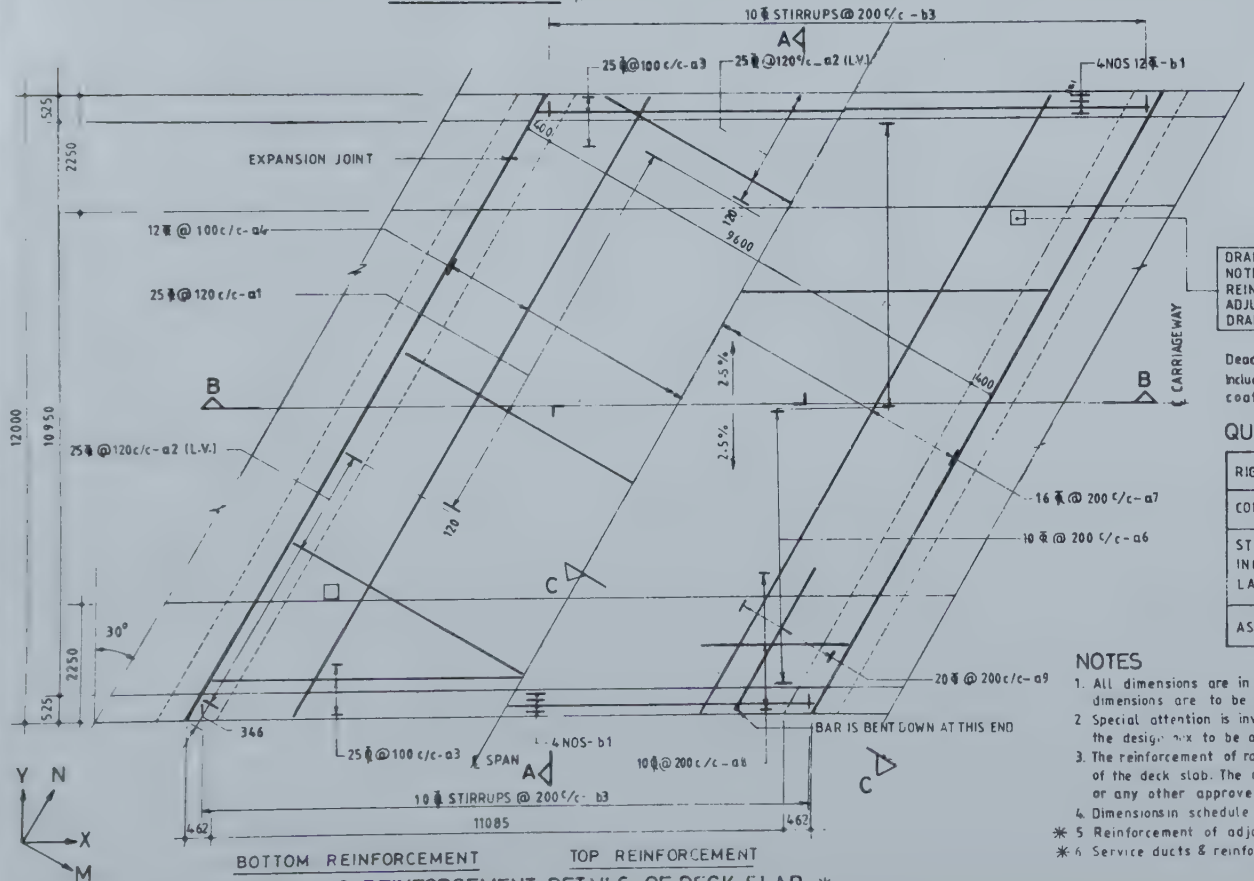
SECTION. A—A



SECTION. B—B ✱

SECTION C-C

(BARS a3, a5, b1, f2 & f3 NOT SHOWN.)



BOTTOM REINFORCEMENT TOP REINFORCEMENT

PLAN SHOWING REINFORCEMENT DETAILS OF DECK SLAB ✱

SCHEDULE OF REINFORCEMENT (PER SPAN)

SL.NO.	LOCATION	BAR MKD	SHAPE	DIA (mm)	SPACING (mm)	LENGTH (mm)	NOS	TOTAL LENGTH(m)	WEIGHT (Kg)
1	SLAB BOTTOM ALONG - M	a1	500 R:100 500 / 10300	25	120	11150	66	735.90	2796
2	SLAB- BOTTOM ALONG - M	a2	500 R-100 500 / VARIES 500 TO 10137	25	120	6169	94	579.84	2203
3	SLAB-BOTTOM ALONG - X	a3	500 R:100 500 / 11909	25	100	12759	22	280.69	1067
4	SLAB-BOTTOM ALONG- N	a4	300 R= 48 330 / 13756	12	100	14284	104	1485.54	1337
5	SLAB-SIDES ALONG- N	a5	13756	10	–	13756	2	27.51	17
6	SLAB- TOP ALONG-X	a6	11909 / 500 R=40 500	10	200	12849	56	719.54	432
7	SLAB-TOP ALONG- N	a7	145 6700 6700	16	200	13400	53	710.20	1136
8	TOP MESH ALONG -X	a8	3242	10	200	3242	30	97.26	58
9	TOP MESH ALONG - N	a9	628 3242 R=80 81 / 492	28	200	4242	24	101.80	255
10	KERB - TOP	b1	11909 / 500 R=48 500	12	–	12837	8	102.70	92
11	KERB - SIDES	b2	11859	10		11859	8	94.87	57
12	KERB - STIRRUPS	b3	405 / 1080 R=40	10	200	3170	122 ✱	386.74	232
13	FOOTPATH-TOP ALONG - Y	f1	90 2050 R / 100 R=32	8	200	3299	122	402.48	161
14	FOOTPATH-TOP ALONG - X	f2	11909 / 600 R=32 600	8	–	13061	20	261.22	104
15	FOOTPATH EDGES ALONG - X	f3	11859	8	–	11859	6	71.15	28

✱ DOES NOT INCLUDE THE ADDITIONAL STIRRUPS AT LAPS OF LONGITUDINAL BARS REFER DRG. NO. SD/156

DRAINAGE SPOUT (TYP) REFER NOTE NO.2 OF DRG. NO. SD/153 REINFORCEMENT TO BE CUT AND ADJUSTED TO ACCOMMODATE THE DRAINAGE SPOUT.

Dead load of the superstructure per span including R.C.C railings @ 3 kN/m & wearing coat @ 2 kN/sq.m = 3627 kN.

QUANTITIES (PER SPAN)

RIGHT EFFECTIVE SPAN (m)	10.00
CONCRETE (cu m)	140.61
STEEL INCLUDING 5% EXTRA FOR LAPS AND WASTAGE (Kg)	10474
ASPHALTIC WEARING COAT (sq.m)	90.07

NOTES

1. All dimensions are in millimetre unless otherwise mentioned Only written dimensions are to be followed.
2. Special attention is invited to note (B)-1 of drawing no. SD/151 regarding the design mix to be adopted.
3. The reinforcement of railing posts shall be incorporated before casting of the deck slab. The railings shall conform to drawing no SD/160 or any other approved type.
4. Dimensions in schedule of reinforcement are given as per IS : 2502.
5. ✱ Reinforcement of adjacent span superstructure, approach slab not shown
6. ✱ Service ducts & reinforcement of footpath not shown in plan.

REFERENCE DRAWINGS

DRAWING NO.	TITLE
SD/151	GENERAL NOTES
SD/153	GENERAL ARRANGEMENT FOR 30° SKEW
SD/156, SD/157 & SD/158	MISCELLANEOUS DETAILS
SD/160	DETAILS OF R.C.C RAILINGS (WITH FOOTPATHS.)

MKD	DATE	DESCRIPTION	BY

REVISION

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
(ROADS WING), NEW DELHI

STANDARD DRAWINGS FOR ROAD BRIDGES

R.C.C. SOLID SLAB SUPERSTRUCTURE (30° SKEW) RIGHT EFFECTIVE SPAN 10·0m

(WITH FOOTPATHS)

RECOMMENDED BY		APPROVED BY	1992
(ASHOK KUMAR) S.E.	(H.H. SARMA) S.E.	(M.K. MUKHERJEE) C.E	DRG NO. SD/176